

FEBRUARY 27, 1961

# PURCHASING

The Methods and News Magazine for Industrial Buyers



## Tomorrow's Purchasing—Today

*What happens when the computer takes over—How it's  
programed for purchasing—How it measures performance*

A CONOVER-MAST PUBLICATION

SEVENTY-FIVE CENTS

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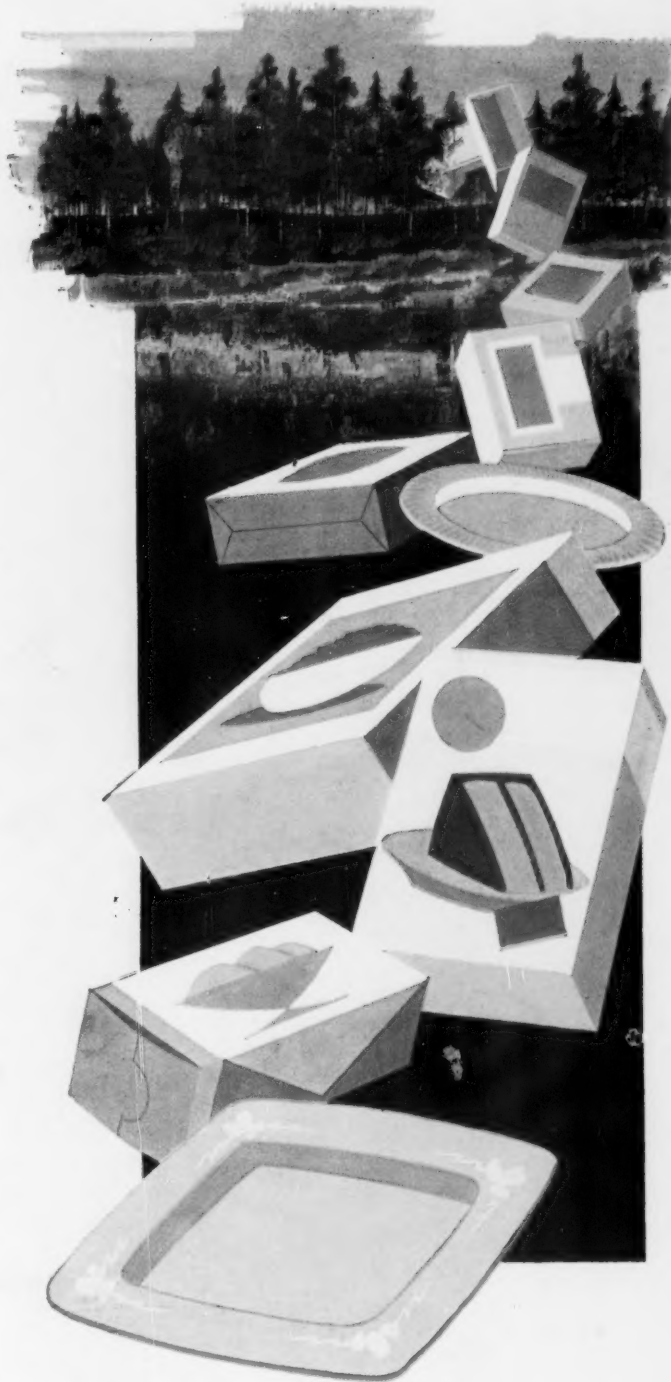
Planned Packaging moves merchandise

*For Today's  
Mass Packaging  
...Purity with  
New Economy!*

Packaging Corporation of America now introduces a new paperboard consisting of a homogeneous blend of virgin pulpwoods. Through advanced new techniques this revolutionary new product offers substantial economies and meets a wide range of packaging requirements.

New *North-Brite Blended Paperboard* is proving itself outstandingly as a more economical medium for packaging many products where quality characteristics, appearance and assured purity of raw material are essential.

Development of specialized processes for production of efficient, lower cost paperboards is but one of the countless ways in which Packaging Corporation's concept of Planned Packaging produces better packaging... more sales. Whether your requirements are large or small, regional or national, we welcome the opportunity to help you.



*Packaging Corporation of America*

1632 CHICAGO AVENUE • EVANSTON, ILLINOIS

*Cartons • Containers • Displays • Egg Packaging Products • Molded Pulp Products • Paperboards*

For More Facts Write No. 151 on Information Card—Page 32

For More Facts About Ad  
on Facing Page Write in No. 154→





## New Century Electric motor starts on 50% less current

Here is the answer to power company limits on starting current for *single phase motors* . . . a new Century Electric capacitor-start motor with a really low starting current. In the 20 hp size the *starting* current is 220 amps . . . as low as that for a normal 10 hp motor.

**Solve many problems**—Because of the high cost of running three phase power to many areas, most utilities prefer to supply single phase power. Now heavier equipment can be started on single phase power. This new motor provides enough horsepower to start and operate equipment like . . . large irrigation pumps, crop and hay dryers and hammermills on an open clutch.

**Reliable operation**—Insulation is bonded "Mylar" and varnish . . . gives tough mechanical protection, high dielectric strength and resistance to

moisture. Motor is smooth and quiet running because of carefully balanced rotor. Rotor laminations are skewed for quiet operation. High pressure aluminum casting gives rotor winding bars high density.

Capacitor box comes in separate weather-protected enclosure . . . means it can be mounted conveniently next to control device or wherever space can be best utilized.

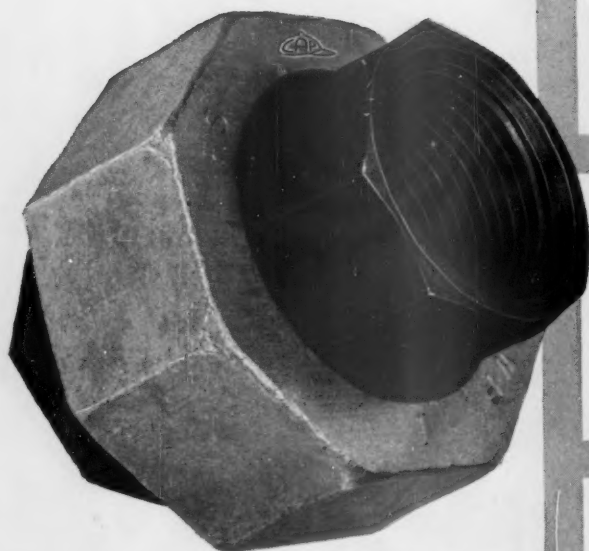
**Variety of enclosures**—The new Century Electric CPF motor is available in totally-enclosed and dripproof enclosures. Sizes range from 7½ to 20 hp . . . speeds 1200 and 1800 rpm.

For more information contact your nearest Century Electric Sales Office or Authorized Distributor. For detailed information on motor applications write for the new Century Electric Motor Application Guide . . . bulletin 270A. For *more* than a motor . . .

**CENTURY ELECTRIC COMPANY**

St. Louis 3, Missouri Offices and Stock Points in Principal Cities

*Century*  
59-18



## 4-WAY JOB INSURANCE

Capitol forged steel unions have built-in insurance to give 4-way trouble-free service!

(1) *Leak-proof connections* assured because Capitol unions have *more* threads, accurately cut and double-checked according to Army-Navy gauging practice. Both hand-tight and pressure-tight threads are checked, two operations instead of the one required for American Standard gauging. The extra threads mean on-the-job assurance of tight installations. (2) *Positive seating* because each union is individually pressure-tested. (3) *Clean/over-all protection*, each male and female part completely phosphate coated; each nut electro-zinc plated. (4) *Easy wrenching/faster make-up* because all three parts have a definite octagon shape.

You get all 4 important advantages at no extra cost when you specify CAPITOL forged steel unions . . . one of the full-line of Army-Navy gauged forged steel fittings.

Now more than one million in service and not a single failure.

**CAPITOL MANUFACTURING CO.,**  
Division of Harsco Corporation, Columbus, Ohio.

**1**  
LEAK-PROOF CONNECTIONS

**2**  
POSITIVE SEATING

**3**  
CLEAN/OVER-ALL PROTECTION

**4**  
EASY WRENCHING/FAST MAKE-UP

# CAPITOL



**SOLD ONLY THROUGH  
RECOGNIZED DISTRIBUTORS**

For More Facts Write No. 155 on Information Card—Page 32

PURCHASING

# AVISCO® "T" FILMS

... new extra strength  
packaging materials developed  
by American Viscose research

■ **Special combination of cellophane and polymer resins.**

Packagers have long needed films that combine superior strength with the pure transparency and sparkle of cellophane. Experiments have been going on for years in the Avisco film laboratories to satisfy this need. Recent results of this continuing research are two new films combining cellophane and polymer resins. They're called Avisco "T" Films—tough, truly transparent and trouble-free on high speed packaging machines. Now far past the experimental stage, Avisco "T" Films have been proved superior in actual use by packagers of various products, and are now available in limited commercial production.

■ **Virtually eliminate broken packages . . . protect product quality.** New Avisco "T" Films offer superior durability under normal temperatures. And this superiority is even more pronounced at temperatures below freezing. What's more, "T" Films offer the same high standard of product protection as cellophane, and they print just as beautifully. "T" Films are also unmatched for high speed machine performance in all types of bag making, filling and overwrapping operations.

■ **Ideal in single-wall bag constructions . . . excellent choice for packaging a wide variety of products.** Hardware, textiles, paper products, pharmaceuticals, snack items, shelled and unshelled nuts, candies, cookies, dry beans, macaroni and rice, are a few



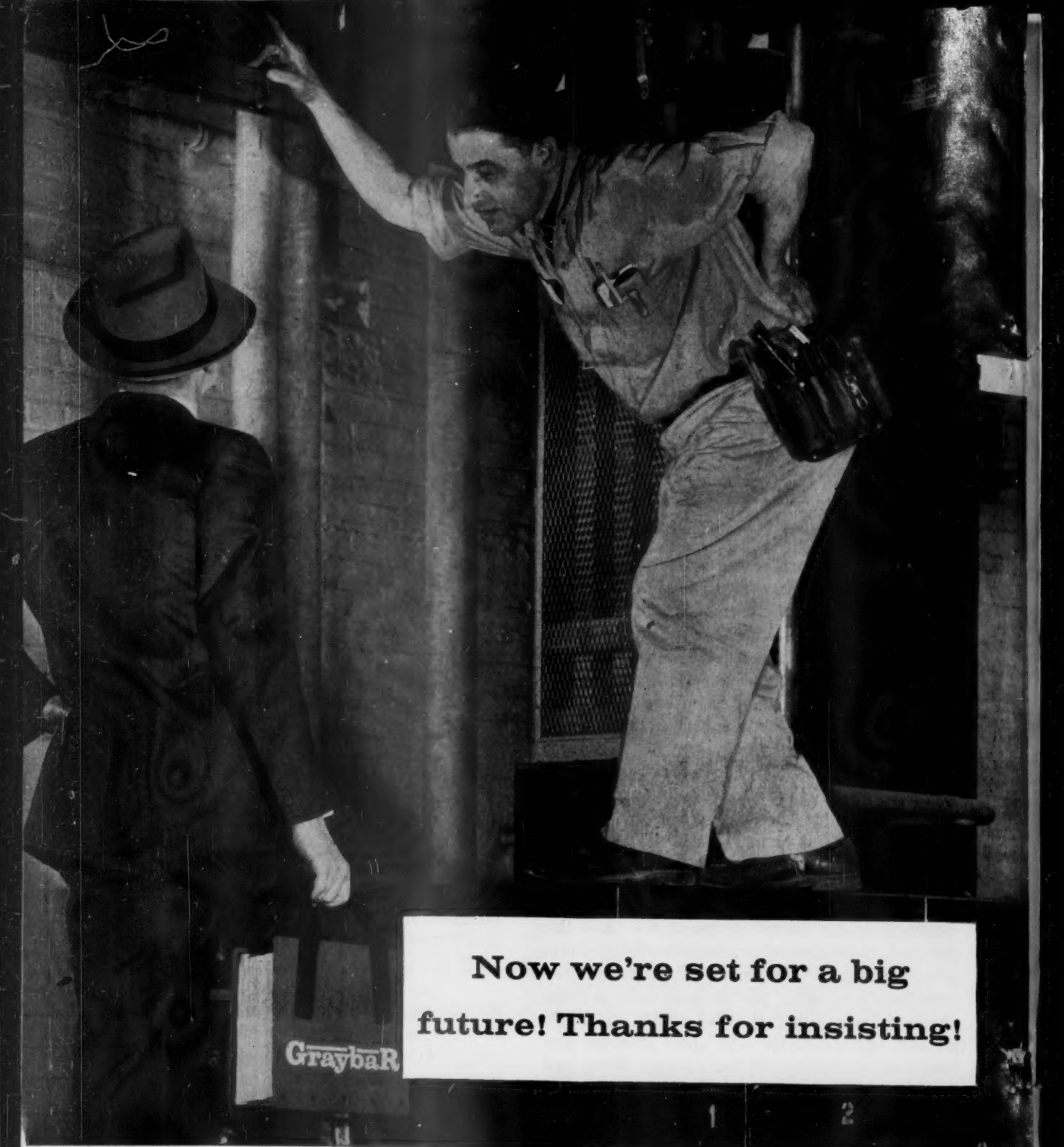
examples. In each case, Avisco "T" Films will result in total packaging economy. The same benefits also apply in bundling multiple units for redistribution.

■ **Two types of Avisco "T" Film are now available—both 450 gauge.** Avisco T-69 Film is nitrocellulose coated. Avisco T-79 Film is polymer resin coated. Both films provide superior strength, and yield 14,000 square inches per pound. Find out how they can serve your packaging requirements better. Phone or write for an appointment with our representative in your area or a selected cellophane converter specializing in your field.



**AMERICAN VISCOSE CORPORATION, FILM DIVISION, 1617 PENNSYLVANIA BLVD., PHILADELPHIA 3, PA.**  
SALES OFFICES ALSO LOCATED IN ATLANTA, BOSTON, CHICAGO, DALLAS, LOS ANGELES AND NEW YORK.





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future! Thanks for insisting!

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The recommendation he makes comes from experience with countless kinds of power distribution equipment, motors, controls, wiring and lighting supplies.

Call Graybar for impartial recommendations . . . and able, in-the-plant help. We'll work with you or your electrical contractor.

95

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FEBRUARY 27, 1961  
VOLUME 50, No. 5

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## Tomorrow's Purchasing—Today ..... 70

Like it or not—the purchasing executive will have to face the fact that there's going to be a computer in his life—if there isn't one already. It's an inevitable part of business progress. Naturally the advent of business automation brings its problems with its blessings. To find out exactly what happens to purchasing when the computer is moved in, Technical Editor John Van de Water went to the company that has done more in the field of purchasing automation than any other—IBM. After more than a month of virtually living with IBM purchasing, Van de Water gained an inside view of the philosophical aspects of purchasing automation, along with an understanding of how IBM makes its system work. He also developed some definite opinions about the potential that exists for purchasing through automation.

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# **BULLETIN:**

## **Shell Chemical announces the most remarkable rubber achievement since the development of synthetics**

**The first commercial synthetic rubber to duplicate the molecular structure of natural rubber is now in full scale production. It is called Shell Isoprene Rubber.**

**Read about this new man-made product. Why it bounces like tree-grown rubber. And why this bounce is so important.**

**S**HELL Isoprene Rubber is Shell's name for *polyisoprene*. It is the first commercially made synthetic to have the same basic *cis*-polyisoprene molecular structure as nature's product.

Shell Chemical can produce over 40,000,000 pounds of polyisoprene this year. That's enough rubber to make one million heavy-duty truck tires.

This achievement ends the rubber industry's search for an economical way to make large quantities of polyisoprene. Here is the story in brief.

### **Rubber made from oil**

During the Korean conflict, our nation faced its most acute shortage of natural rubber since the Second World War. To help meet our rubber demands, Shell Chemical and other companies increased the production of synthetics made from petroleum hydrocarbons.

### **Why bounce is so important**

These synthetics proved adequate substitutes for natural rubber in hundreds of products. And they still do. But they all lack one vital property inherent in natural rubber—*high resiliency*.

This excludes them from use in heavy-duty truck, bus and airplane tires which consume two-thirds of the natural rubber we import each year. Without the high resiliency or "bounce" of tree-grown rubber, these

tires could not withstand the extreme temperatures or heat build-up caused by repeated flexing at high speeds. They would wear out at an uneconomic and hazardous rate.

Now, new Shell Isoprene Rubber can supply this "bounce" in tires, motor mounts, basketballs—anything that needs it.

### **Reduces rejects**

Shell Isoprene Rubber will not be confined to a few specialized uses. On the contrary.

Its white color, uniformity and ease of processing mean brighter, more economical products. Its ability to flow freely allows for finer detailing of molded goods—it actually increases manufacturers' production by *reducing costly rejects*. And because this rubber is made by a chemically controlled process, it is a logical choice for surgical and pharmaceutical products that demand exceptional purity.

### **Report from Washington**

Shell's success with polyisoprene means more than a plentiful supply of natural rubber for American industry.

Recently, a U. S. Cabinet member stated: "Commercial development of polyisoprene is an important aid to national defense. Its availability in sufficient quantities will free the United



**A bounce test proves that the polyisoprene ball, left, duplicates the resiliency of the natural rubber ball, right. Note they rebound to the same height.**

States completely from dependence on foreign sources of rubber in time of emergency."

### **How to learn more**

To learn more about new Shell Isoprene Rubber or any of the other industrial and agricultural products that Shell Chemical makes, just write us at 50 West 50 Street, New York, N. Y. They were all developed to make your life a little bit better.

A Bulletin from

**Shell  
Chemical  
Company**





# Pulse of Business

## February Figures Show Recession Continues

**F**EBRUARY is not the month of recovery. While all the figures are not yet in, those signifying a recession show little change.

Unemployment continued upward during the current month. Poor weather has kept down outdoor activity, including both private and public construction. And though the inventory cut back rate has not increased, the trend toward stock reductions is still apparent. Motor vehicle production will hardly even meet the low rate of January, as the industry strives to reduce its stock of cars.

There are, however, some hopeful signs such as the Kennedy Administration's obvious desire to take quick action to ease the recession. Attention drawn to critical unemployment areas will undoubtedly mean an increase in federal aid in these sectors. Among the other optimistic trends: retail volume has held fairly steady despite the heavy snow storms that hit the middle Atlantic states, savings are at an almost abnormally high level, and consumer income has shown little decline.

## See Action to End Slump

The high rate of female employment is another hopeful indication for the economy. Women have not been too seriously affected by the rising tide of unemployment, mainly because not too many of them have jobs in the hard-hit heavy production industries.

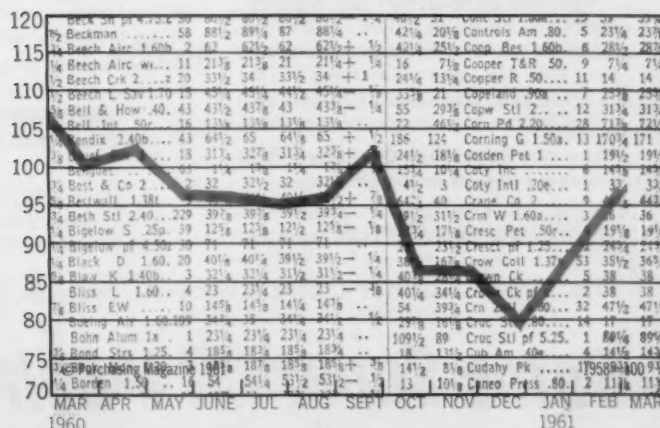
There are 22 million women employed and they constitute 34% of the total working population. One-third of the female workers are in secretarial, clerical, and sales jobs, and there are more women than men in education, hospitals, banks, telephone and insurance companies. Technological advances have freed women from household drudgery and made it possible for them to hold outside jobs. In addition, advances in production machinery have enabled women to do many jobs in the field of light manufacturing.

Will these women be displaced by men if the unemployment problem becomes more acute? Hardly, because they have demonstrated their ability to work productively. Most employers would be reluctant to undertake long training programs with men for jobs where manual dexterity, natural in most women, must be developed.

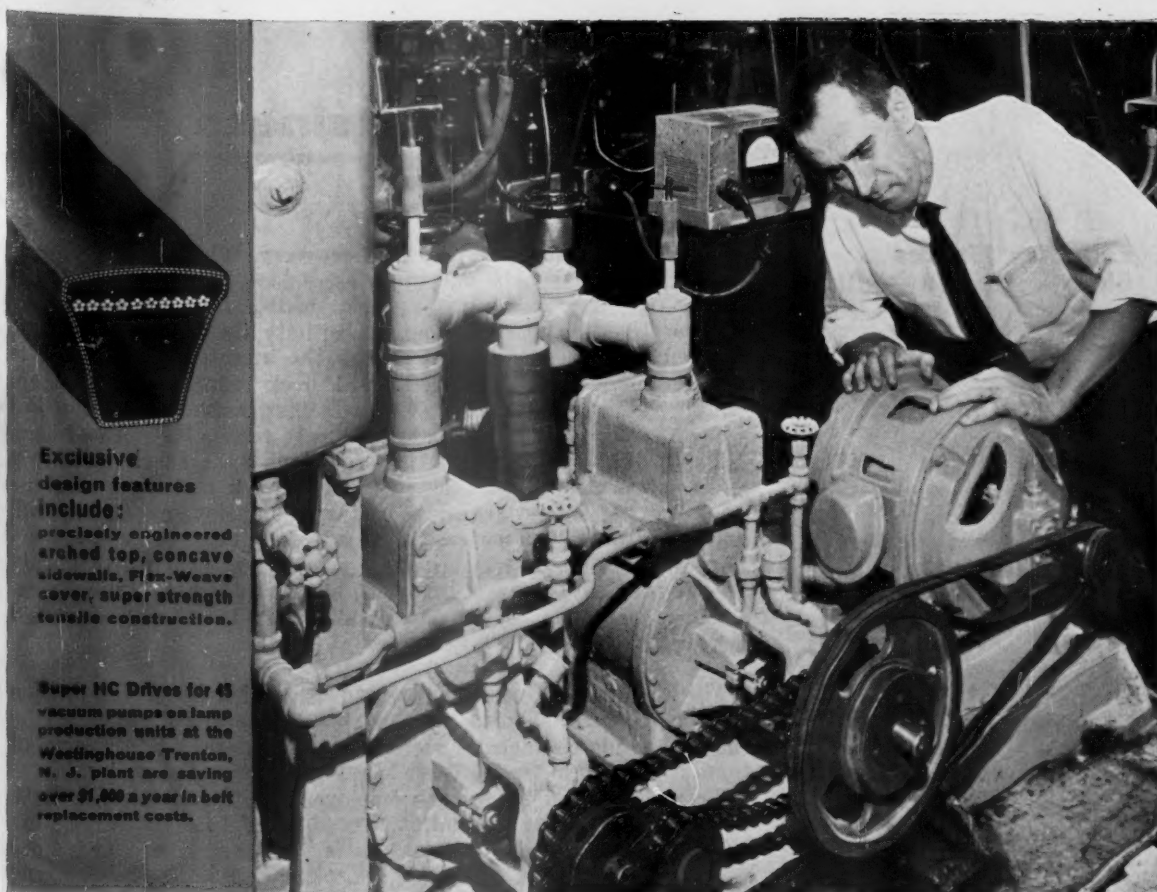
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## Business Confidence Index

How P.A.s feel about the short-term economic outlook



Purchasing Magazine's Business Confidence Index rose nine points in February to 97 (1958=100). This indicates that P.A.s are now more optimistic about the short-term business outlook than they were last month.



**Exclusive design features include:**  
 precisely engineered arched top, concave sidewalls, Flex-Weave cover, super strength tensile construction.

**Super HC Drives for 45 vacuum pumps on lamp production units at the Westinghouse Trenton, N. J. plant are saving over \$1,000 a year in belt replacement costs.**

## Westinghouse converts drives on 45 machines to new Gates Super HC High Capacity V-Belts

When drive space is limited, a driver sheave too small in diameter is sometimes used—though not recommended. Constant flexing over a small sheave is severe punishment for V-belts. Because of this, conventional V-belts lasted 4 months or less on the vacuum pumps on lamp production units at the Westinghouse Lamp Division plant in Trenton, N.J.

Now, with space-saving Gates Super HC High Capacity V-Belt Drives on all 45 machines, all belts are still running strong after more than 1½ years... a saving of over \$1,000 in belt replacement costs plus even greater savings through reduced down-time.

**The Gates Super High Capacity V-Belt is a new concept in V-belt design.**

It is industry's first and most advanced high capacity V-belt. Because of exclusive design

features, Gates Super High Capacity V-Belts transmit up to 3 times more horsepower than conventional V-belts in the same space. Or the same power can be handled with fewer belts and smaller sheaves in less space.

**As a result, Gates Super HC Drives save up to 50% in drive space... cut your drive costs as much as 20%... reduce drive weight 20% and more... and make possible further savings in material costs.**

For complete design information about the Super HC Drive and for expert drive design assistance, contact your nearby Gates Distributor.

*Building the future  
 on 50 years of progress*



**Gates Super HC**  
 Drive saves space,  
 weight and money



The Gates Rubber Company, Denver, Colorado

BP4H

# Gates Super HC V-Belt Drives

For More Facts Write No. 159 on Information Card—Page 32

## Pulse of Business

### PRODUCTION

Existence of a large female working force also bodes well for retail volume. According to a study by Du Pont, women have full control of 60% of consumer spending and a lot to say about the balance. Women alone in the United States spend more money each year than all the men, women, and children in West Germany, Great Britain, France, Brazil, and Japan. They hold \$68 billion in savings accounts, \$30 billion in government bonds and over \$75 billion in life insurance.

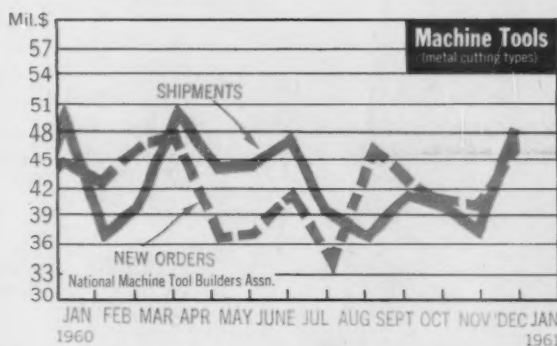
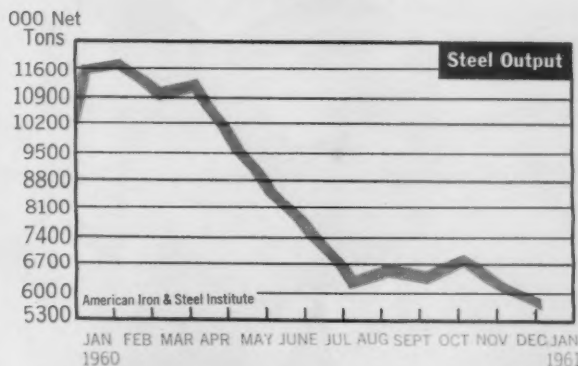
The first break in overall high unemployment is expected in the spring. If employment thereafter follows the seasonal patterns evident in the last four years, there will be further reductions in the ranks of the unemployed through May but some increase in June as school vacations and graduations swell the ranks of employables. For the balance of the year, there will be further declines in unemployment.

As would reasonably be assumed during a period of weakness in sales, the liquidation of factory stocks in recent months has been in working stocks—purchased materials and goods-in-process.

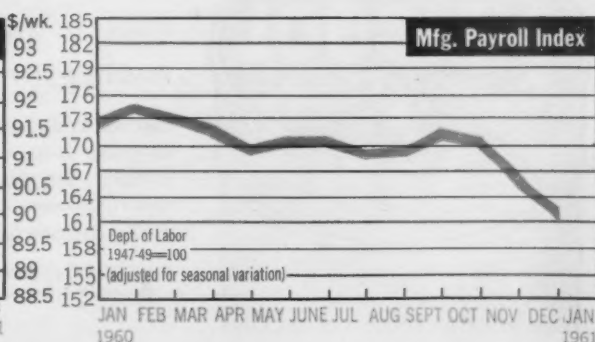
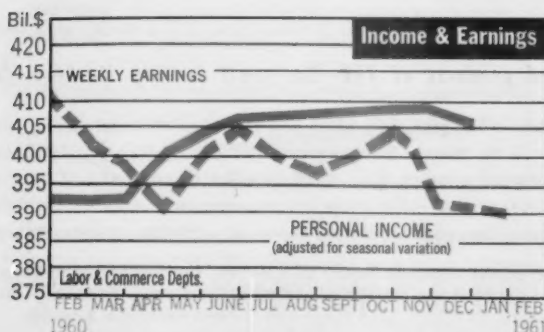
Commerce Department inventory analysts report that finished goods stocks rose steadily during the first three quarters of 1960, and were little changed in the fourth quarter.

Candid view from government sources is that it will take a sharp lift in sales to bring buyers back into the market.

Bureau of Labor Statistics figures show that prices at the wholesale level have been moving sideways—with some prices going up, some going down. Overall, according to the BLS indexes, there has been a 1% drop in the whole-



### LABOR





# PRODUCTION JUMPED 466%

when CIMCOOL S2, the world's leading chemical cutting fluid, got on the job in Chicago.  
(Company name on request.)



## SALES REPORT

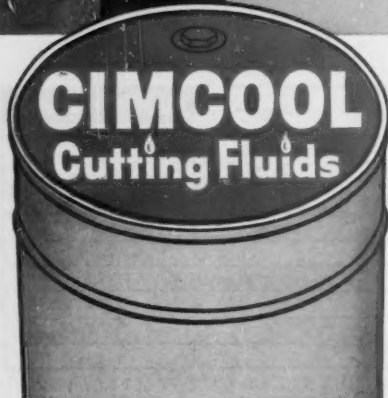
2.

and they make electrical components. The trouble they were having was in the high production milling of iron relay cores. They had only been able to turn out 120 cores per hour using straight cutting oil.

When we installed Cimcool S2 at a 1:20 dilution, the SFPM went from 120 to 330, and the feed increased from 2" per min. to 12" per min. As a result they increased production of the relay cores from 120 per hour to 680 per hour. That's a 466% jump!

In addition, they eliminated a de-greasing operation after milling. The machine was cleaner. Chips didn't stick to it. With Cimcool there was no smoke, no rust, no dermatitis and no rancidity

*Bill Wolfenson*  
Chicago Office



FOR 100% OF ALL METAL CUTTING JOBS  
Production-proved products of The Cincinnati Milling Machine Co.

- CIMCOOL S2 Concentrate — The pink fluid which covers 85% of all metal cutting jobs.
- CIMPERIAL® — Newest in the famous, industry-proven line of CIMCOOL® Cutting Fluids.
- CIMPLUS — The transparent grinding fluid which provides exceptional rust control.
- CIMCUT Concentrates (AA, NC, SS) — For every job requiring an oil-base cutting fluid.
- ALSO — CIMCOOL Tapping Compound — CIMCOOL Bactericide — CIMCOOL Machine Cleaner.

For full information on the complete family of CIMCOOL Cutting Fluids, call your CIMCOOL Distributor. Or contact Cincinnati Milling Products Division, Cincinnati 9, Ohio.

\*Trade Marks Reg. U. S. Pat. Off.

## Pulse of Business

### TRADE

sale index since early 1960.

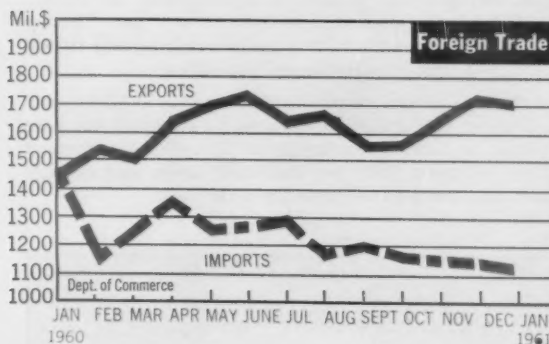
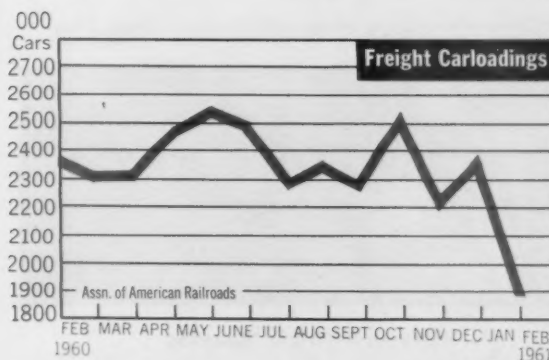
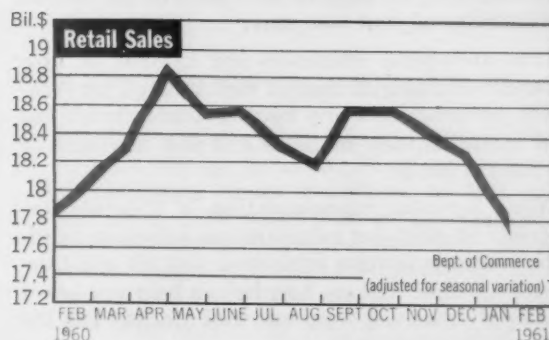
For the immediate future, government price analysts do not anticipate much movement in prices. As soon as demand starts to pick up, prices are expected to firm.

But even with a full-blown recovery, the forecasters do not expect a strong upward movement in the price index. They point out that there is a lot of competition, and that suppliers can make deliveries quickly. Supplies of most commodities are too plentiful to warrant a major upturn in prices.

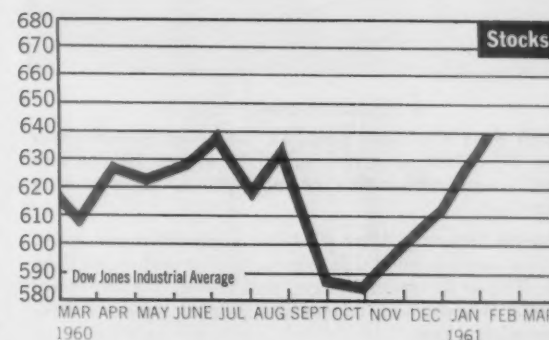
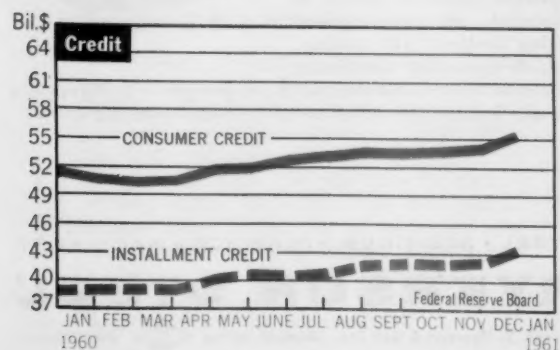
The missile program discussion has created confusion as to the nation's preparedness. Representative George H. Mahon (D-Tex.), chairman of the appropriations committee's subcommittee on defense, says that the missile gap is real and that it will continue through 1963. He believes, however, that overall U. S. military strength is superior to that of the Soviet Union.

Some experts feel that the ICBM power of the United States at this time is practically nil. Our missiles can be fired by scientific experts, but they are still too complicated for servicemen—except for those who have been highly trained. Some launching pads need up to two weeks of repair after a missile is fired. Military missiles have been neglected to some degree because the best scientists have been devoting their time to space exploration.

The embarrassment caused by conflicting reports on missile preparedness has done one thing, if nothing else. It has brought a thicker cloak of secrecy over the program, a development that is hardly likely to instill greater confidence in our ability to lick the problem.



### FINANCE



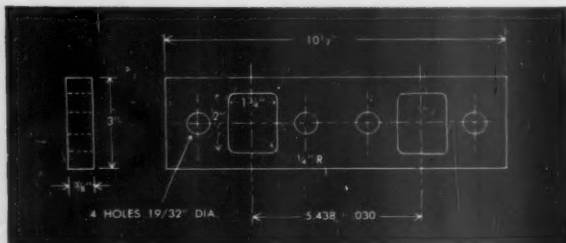
# Savings like these through Metalogics\*

As part of your purchasing function, you're naturally searching for ways to contribute to the over-all profitability of your company.

The following examples are typical of how Ryerson Metalogics sparks real savings for hundreds of companies—by helping them search out new materials, new methods and new machines to do the job better.

Your Ryerson representative is "Metalogics-trained" to help you value-analyze selection, fabrication and application problems. Get his constructive ideas soon, and see how he can help you select and apply material from our vast stocks. It's the "Metalogical" thing to do.

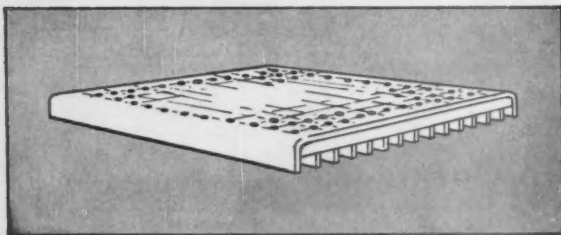
*\*The Ryerson science of giving optimum value for every purchasing dollar.*



## Saved: \$100 per thousand

**PROBLEM:** Muffler manufacturer required accurately finished mounting plates made from  $\frac{3}{8}$ " x 3" bar. Cutting bars to size, burning  $1\frac{1}{4}$ " x 2" holes and drilling four 19/32" holes proved time-consuming and expensive.

**SOLUTION:** Ryerson recommended that they eliminate cutting, burning and drilling operations by stamping the part from Ryerson forming-quality plate. One operation instead of three cut costs \$100 per thousand pieces and quickly justified the small initial investment in dies.



## Suggestion saves 85%

**ASKED FOR:** Customer wanted 1" hot rolled plate to cover about 80' of 24" open trench. Plate was to be cut into 24" x 27" segments—each containing 900  $\frac{3}{8}$ " holes to filter the product.

**RECOMMENDED:** After studying application and costs, Ryerson recommended a design combining perforated light plate, formed to channel shape, and grating for structural support. Ryerson's experience and imagination saved 85% of the original cost.

## Machine cut rings solve problem

### PLATES REQUESTED:

Ryerson was asked to bid on supplying  $\frac{1}{4}$ " Type 410 stainless in  $27\frac{1}{4}$ " square plates. Material was to be used for orifice plates for 16" burner, subjected to elevated temperatures.

### RINGS RECOMMENDED:

Going beyond material specs, the Ryerson representative found that the customer intended to cut plate into  $27\frac{1}{4}$ " diameter length with 13.120" bore—and then mill 12 slots in outer diameter for expansion relief. Knowing the application, Ryerson recommended supplying machine-cut rings in which slots could then be punched rather than milled. Production savings enabled switching to Type 304 at less cost than Type 410 with slots milled.



## 2 metalworking machines for the price of 1

A fabricator of stainless steel kitchen equipment was recently in the market for a new squaring shear. The one under consideration had a gap-type frame which would enable him to do an important notching operation—necessary for certain sink tops. After careful study, a Ryerson machinery specialist recommended *two* pieces of equipment instead of one at no increase in total cost. The first, an under-driven shear. The second, a universal-type sheet metalworking machine that would do the required notching, plus many other jobs—adding versatility to the entire operation.

## Production upped 30%


**BEFORE:** Job shop was using MT 1015 tubing in the manufacture of this coupling. Machinability was satisfactory, but rising costs of operation led to a search for ways to economize.

**AFTER:** Careful study by the Ryerson representative brought about a change in material. He recommended using Ledloy® 170 tubing, which increased machining speed to 170 sfm and stepped up production 30%. Ryerson's stocks include the widest range of fast-machining alloys.



STEEL • ALUMINUM • PLASTICS • MACHINERY

# RYERSON STEEL®

Joseph T. Ryerson & Son Inc., Member of the  Steel Family



## Straws in the Trade Wind

► **WHITE COLLAR UNIONS**—White collar unions are making almost no progress in gaining members, according to a National Office Management Association survey. When white collar workers do "go Union" the main reasons are unfair wage or salary administration, inadequate fringe benefits, lack of firm promotion policies, and supervisors who are not well trained or informed.

► **NO FACTORY EMPLOYMENT DIP**—A National Industrial Conference Board survey indicates factory employment during the next 12 months will increase or at least remain the same in 80% of 160 manufacturing companies checked. Fifty percent of the companies expect little change in employment; 30% expect employment to increase, and 20% expect it to decline.

► **URGE TO MERGE, OFF IN '60**—Federal Trade Commission reports fewer major business mergers in 1960 than in 1959. The Commission lists 1,012 mergers in 1960 against 1,050 in 1959. Industries where mergers did increase are: textiles, apparel, lumber and furniture, paper and allied products, printing and publishing, rubber products, and electrical machinery.

### For the P.A.'s Hot File . . .

Business executives are not overly optimistic about the second quarter outlook—the period when many economists expected to see signs of an economic pick-up. A recent survey by Dun & Bradstreet of businessmen's second quarter expectations shows that: less than half (46%) expect sales to top the same period last year, and only 37% believe profits will be higher than they were a year ago. The D&B study reflects the views held by businessmen late in January.

► **SMALL SHIPPERS HIT HARD**—As a result of the Teamster's Union midwest labor negotiation victory, the Central States Motor Freight Bureau is adding \$1.00 surcharge on all shipments except truckloads of iron, steel and glass containers, plus a 50¢ increase in minimum charges, effective February 23. The flat \$1 surcharge means the small shipper will face a 20% to 30% increase, while the truckload shipper will pay less than a 1% increase.

► **COAL CHEMICALS SCARCE**—Most coal chemicals are by-products of coke. Most coke is produced during steel manufacture. As steel production drops, coal chemicals grow scarce. Napthalene, used in plastics and paint, is now selling as high as 17 cents per pound in limited quantities offered by speculators. Last year, it sold for as low as five cents per pound. Benzene and ammonium sulphate are also coal chemicals in short supply.

► **BIG YEAR FOR BARGAINING**—This year will be a busy one around the conference tables as contracts affecting two million workers are due to be negotiated. Most important will be the auto contracts which expire in August and September. Other important settlements that have to be worked out: tire and rubber, meat packing, machinery.

► **ELECTRIC HEAT PROSPECTS**—Electric utility company economists and market analysts report over 700,000 homes were heated electrically at the end of 1960. They predict over 1.8 million homes will have electric heat by the end of 1965 and over 3.6 million by the end of 1970. They also expect an increase in commercial electric heating installations. Electric heating is being plugged by 150 U.S. utilities through a \$1 million advertising campaign.

► **ELECTRICAL BOYCOTT**—A Chicago local of the International Brotherhood of Electrical Workers says it will refuse to work with TV, radio, and other electronic parts imported from Japan and other low-wage countries, effective May 1. The Amalgamated Clothing Workers of America recently took similar action against imported fabrics.

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This symbol stands for fusible switch



This symbol stands for QUALITY

**THE SAFETY SWITCH THAT CHALLENGES COMPARISON!**

# Bulldog's heavy-duty safety switch!

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**I-T-E CIRCUIT BREAKER COMPANY**  
BULLDOG ELECTRIC PRODUCTS DIVISION

For More Facts Write No. 162 on Information Card—Page 32

**PURCHASING**

## Pulse of Business

### Sales, Inventories, Orders

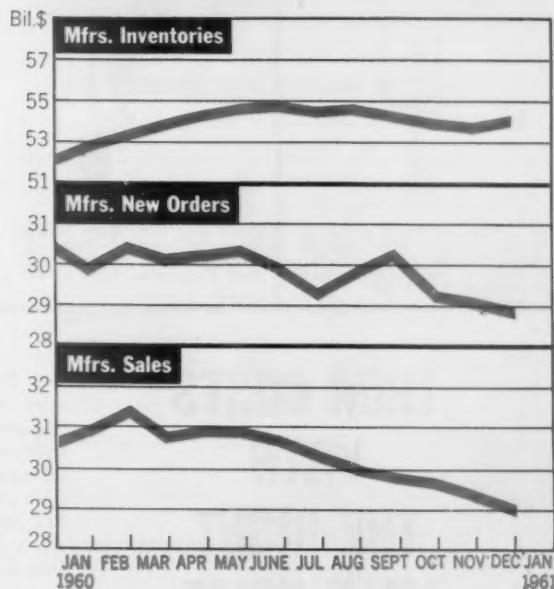
#### ● Manufacturers' Sales, Inventories, Orders Fall

**M**ANUFACTURERS' sales, inventories, and new orders were lower in December, reports the Department of Commerce.

Seasonally-adjusted sales were off 1% from the previous month to \$28.9 billion. Declines occurred primarily in the durable goods industries.

Factory inventories totaled \$53.7 billion, the lowest since March 1960. This represents a \$350 million fall from the value of stocks held in November.

The volume of new orders, \$28.8 billion, was the smallest since January 1959. New business dropped 2% from the previous month, with the decline taking place mainly among producers of fabricated metal goods, industrial machinery, and transportation equipment. Orders for nondurables showed little change.



#### Manufacturers' Sales Seasonally Adjusted (Millions of Dollars)

	1959		1960			
	Dec.	Aug.	Sept.	Oct.	Nov. (r)	Dec. (p)
All Manufacturing Industries.....	30,814	30,150	30,090	29,600	29,250	28,940
Durable-goods industries.....	14,992	14,420	14,410	14,080	13,810	13,560
Primary metal.....	2,815	1,980	1,920	1,790	1,790	1,760
Fabricated metal.....	1,751	1,700	1,650	1,530	1,570	1,560
Machinery.....	4,699	4,700	4,660	4,590	4,610	4,520
Transportation equipment.....	2,970	3,350	3,570	3,630	3,300	3,180
Lumber and furniture.....	906	870	810	780	790	790
Stone, clay, and glass.....	707	730	730	700	700	690
Non-durable goods industries.....	15,822	15,730	15,670	15,520	15,440	15,380
Food and beverages.....	4,687	4,660	4,690	4,700	4,660	4,680
Tobacco.....	431	410	390	390	420	390
Textile.....	1,267	1,200	1,200	1,150	1,130	1,120
Paper.....	1,049	1,090	1,090	1,040	1,050	1,060
Chemical.....	2,371	2,330	2,300	2,260	2,220	2,230
Petroleum and coal.....	3,148	3,170	3,200	3,230	3,190	3,220
Rubber.....	508	480	510	490	500	480

#### Manufacturers' Inventories Seasonally Adjusted (Millions of Dollars)

	52,316	54,980	54,710	54,380	54,010	53,650
All manufacturing industries.....	52,316	54,980	54,710	54,380	54,010	53,650
Durable-goods industries.....	30,000	32,080	31,840	31,430	31,070	30,780
Primary metal.....	4,114	4,710	4,640	4,570	4,520	4,490
Fabricated metal.....	3,105	3,340	3,270	3,180	3,100	3,100
Machinery.....	9,848	10,590	10,530	10,440	10,350	10,280
Transportation equipment.....	7,135	7,360	7,240	7,100	7,020	6,940
Lumber and furniture.....	1,854	1,920	1,940	1,960	1,930	1,860
Stone, clay, and glass.....	1,359	1,440	1,460	1,460	1,430	1,440
Non-durable goods industries.....	22,316	22,900	22,870	22,950	22,930	22,870
Food and beverages.....	4,775	4,950	4,980	5,010	4,960	4,960
Tobacco.....	1,972	1,940	2,000	2,030	2,020	2,020
Textile.....	2,490	2,670	2,640	2,640	2,660	2,630
Paper.....	1,500	1,630	1,640	1,650	1,650	1,620
Chemical.....	4,049	4,180	4,160	4,180	4,180	4,180
Petroleum and coal.....	3,306	3,290	3,260	3,280	3,300	3,300
Rubber.....	1,124	1,240	1,200	1,160	1,140	1,160

#### Manufacturers' New Orders Seasonally Adjusted (Millions of Dollars)

	30,890	30,010	30,400	29,210	29,020	28,760
All manufacturing industries.....	30,890	30,010	30,400	29,210	29,020	28,760
Durable-goods industries.....	14,886	14,410	14,620	13,740	13,600	13,350
Non-durable goods industries.....	16,004	15,610	15,780	15,470	15,420	15,410

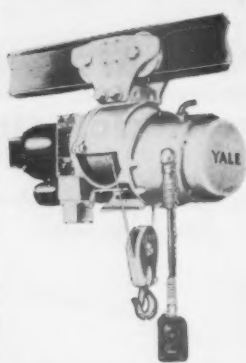
(r) Revised.

(p) Preliminary.





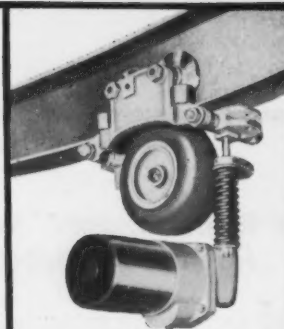
**Air Hoist**—Lightweight, compact. Explosion proof motor. Infinite speeds. Roller or link chain, pendant or pull-cable control. Capacities:  $\frac{1}{4}$  to 1 ton.



**Load King Wire Rope or Link Chain Electric Hoist**—Two brake safety feature. Weather resistant. Capacities:  $\frac{1}{4}$  to 2 tons.



**Pul-Lift**—Ratchet handle action. Self-actuating load brake. Fracture resistant safety hooks. Link or roller chain models. Capacities:  $\frac{1}{4}$  to 15 tons.



**Tractor Trolleys**—Motor driven. Push button control. Pulls any type of equipment. Capacities: Up to 5 tons.

## TRIM COSTS WITH THE RIGHT YALE HOIST FOR THE JOB

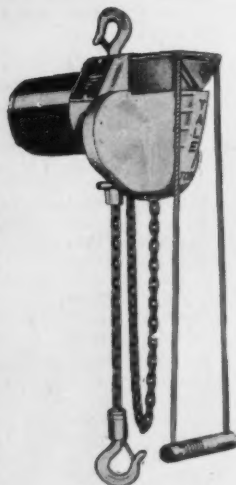
You're money ahead with the right hoist for the right job. You get the right lifting power . . . the right sturdiness to take the load . . . the right low level of maintenance costs. Yale offers you the *economy of the right equipment* . . . from a diversified range of hand and powered models . . . including models instantly available from your Yale distributor's stock. Consult him. He can help you with the right equipment for loads from  $\frac{1}{8}$  to 40 tons. And for added mobility, consult him on hand and powered trolleys.

See your Yellow Pages or write us for your distributor's name. *Yale Materials Handling Division, Dept. X-104, Philadelphia 15, Pa. A division of The Yale & Towne Manufacturing Co.*

# YALE

INDUSTRIAL LIFT TRUCKS  
TRACTOR SHOVELS • HOISTS

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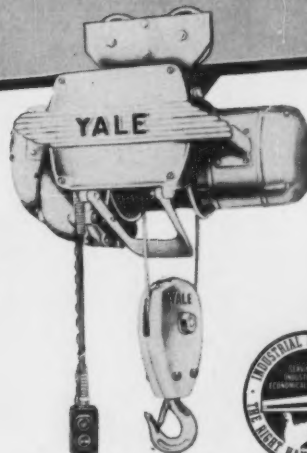
**Midget King Electric Hoist**—New link chain model picks up loads not directly under hoist. Safety limit stops. Roller chain model available. Capacities:  $\frac{1}{2}$  to 2 tons.



**Load King Hand Hoist**—Portable, highly efficient, fast hoisting. Revolutionary Synchro-matic load brake. Ball bearings on all rotating shafts. Capacities:  $\frac{1}{2}$  to 12 tons.



**Close Headroom Load King Trolley Hoist**—Adjustable, lightweight, efficient. Supplied with plain or geared trolley. Capacities:  $\frac{1}{2}$  to 12 tons.



**Cable King Electric Hoist**—Heavy duty. All types of suspension. Two brake safety. Air cooling assures long life. Capacities:  $\frac{1}{4}$  to 15 tons.



## Pulse of Business

### The Trend of Prices

#### ● Nonferrous Metal Markets Remain in the Doldrums

#### ● Copper Producers Oppose Mansfield Cartel Plan

THE NONFERROUS metal markets remain in the doldrums. Ordering by purchasing agents still shows no marked improvement in spite of many months of slack demand.

This is the market outlook for the major non-ferrous metals:

**Copper:** Some copper orders have been placed for March delivery, but demand in general has been spotty. Sales during February were considerably lower than copper suppliers anticipated.

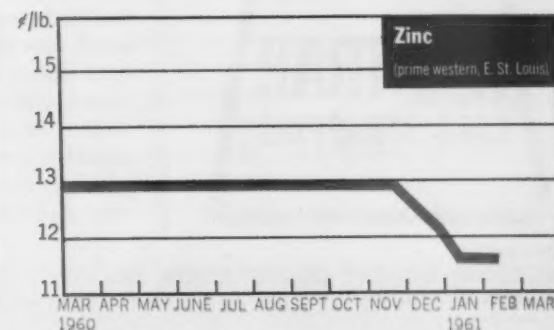
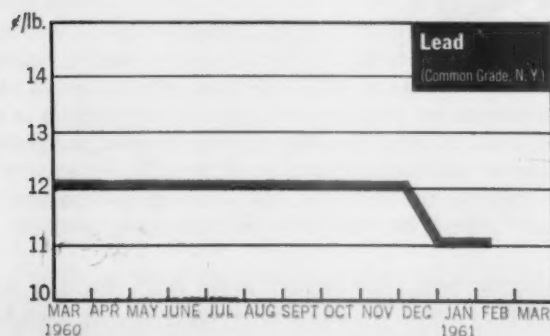
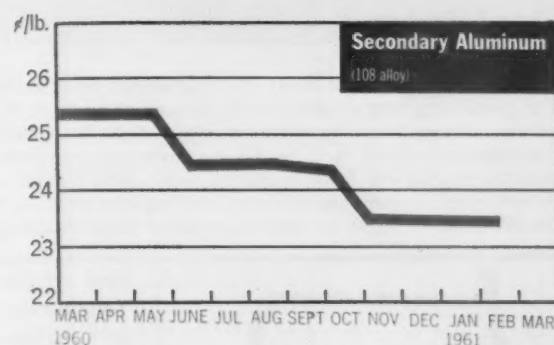
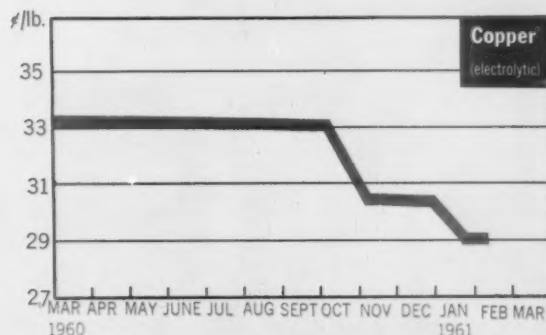
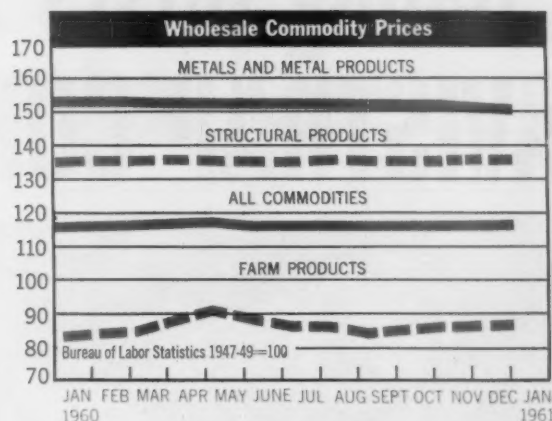
Most American producers are opposed to Senator Mansfield's proposal to establish an international cartel to regulate copper prices and output. They fear increased government regulation if a cartel is established.

**Tin:** Despite a slight pickup in Singapore, the tin market here shows no sign of improvement. Purchasing agents apparently have little interest in stepping up their tin purchases.

Warehouse stocks of tin totaled 163 tons at the end of last month, says the American Tin Trade Association. During 1960, inventories reached a high of 394 tons in April and a low of 8 tons in August.

**Aluminum:** Production of aluminum last month amounted to around 160,500 tons. This represents somewhat more than 75% of total capacity.

Output this month will probably be even lower. Production levels in February will fully reflect the curtailments that were made in



# How 43 Textile Mills Reduced Baling Costs 20%-35% with AVISTRAP® CORD STRAPPING



**Replaces Metal.** AVISTRAP in  $\frac{1}{2}$ ",  $\frac{5}{8}$ ",  $\frac{3}{4}$ " widths replaces identical width metal strapping on grey goods bales weighing up to 800 lbs. Coil mounting and handling method devised by Selta Corp., AVISTRAP distributor in Charlotte, N. C., eliminates costly and time-consuming precutting needed with metal strapping. Baling press operator simply preloads strap around bale, ties ends, and releases pressure. Baling with AVISTRAP is faster, or equal to speed of metal strapping.

**Fully Proved.** More than 50,000 AVISTRAP-strapped bales have now been shipped by the 43 mills using this method. In addition to overall savings of from 20% to 35% in shipping room costs, users report AVISTRAP eliminates rust damage, is favored over metal by customers for safety, and convenience of easy removal from bale, easy disposal by normal waste handling methods or by burning.



How do your packaging needs size up with these four advantages? **Toughness**—AVISTRAP will absorb impacts that snap metal strapping. **Safety**—AVISTRAP has no sharp edges, won't lash out with jagged ends. **Lightness**—21-lb. coil of AVISTRAP carries yardage equal to 100 lb. of comparable width metal strap. **Convenience**—Dispensing equipment costs little, is easy to use. Tensioning and sealing require little skill or training. A range of AVISTRAP sizes, all tools and accessories, and tool service are available through local distributors in all major industrial areas. Contact the district office nearest you (listed below) to arrange for a demonstration in your plant. To request application information, write directly to Industrial Packaging Department, American Viscose Corporation, describing your strapping problem.

\*Patents pending.

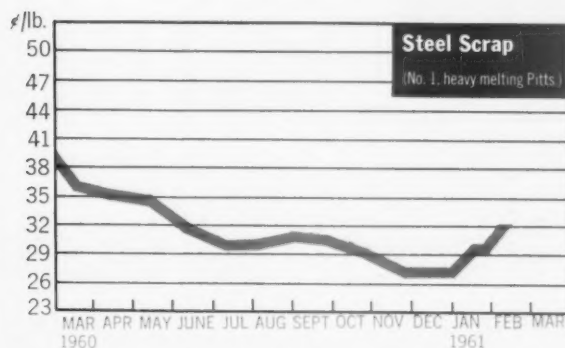
**AMERICAN VISCOSE CORPORATION**, INDUSTRIAL PACKAGING DEPT., 1617 PENNSYLVANIA BLVD., PHILA. 3, PA.  
District offices: Atlanta, Ga., Boston, Mass., Charlotte, N.C., Chicago, Ill., Columbus, Ohio, Dallas, Tex., Denver, Colo., Los Angeles, Calif., New Orleans, La., New York, N.Y.

For More Facts Write No. 164 on Information Card—Page 32

PURCHASING



## Pulse of Business More on Price Trends



January by Reynolds Metal Company in Arkansas and Aluminum Company of America and Kaiser Aluminum and Chemical Corporation in Washington.

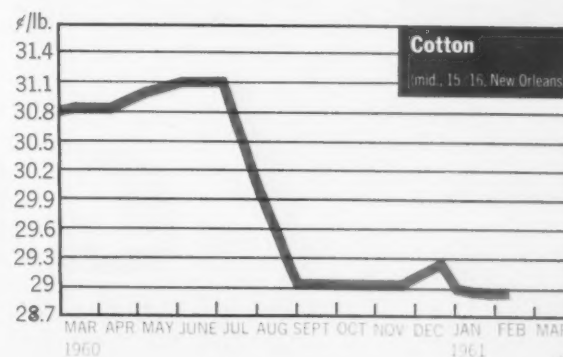
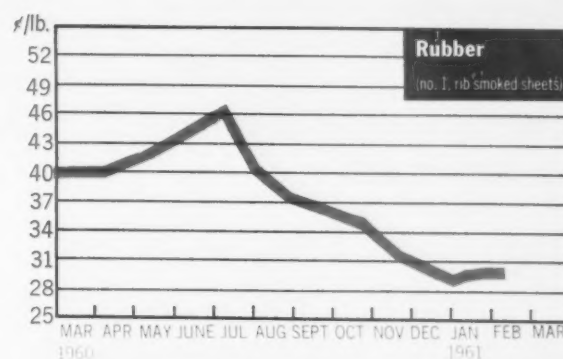
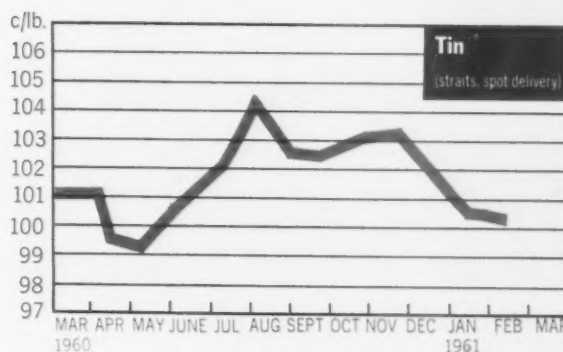
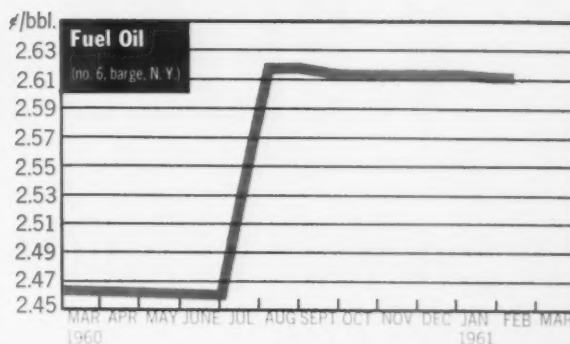
At the present time, inventories of primary aluminum ingot held by producers total about 270,000 tons. In view of current demand, the aluminum companies feel this is excessive and more production curtailments may be in the works.

**Zinc:** The market for slab zinc has been quiet recently. Thus it came as no surprise to many buyers when American Zinc, Lead & Smelting Company announced plans to cut production of metallic zinc by 10% during the first half of this year. Shortly afterwards, St. Joseph Lead Company reduced output 15% at its Josephstown, Pa. smelter—cutting production by 1650 tons monthly.

Domestic mine output of recoverable zinc was 432,442 tons last year, reports the Bureau of Mines. This was an increase of around 2% from the 425,303 tons produced in 1959.

**Lead:** Demand for lead has picked up slightly—partly because of improved shipments of replacement storage batteries as a result of the prolonged cold weather in many areas of the country. Vendors claim that February sales are better than they expected a few weeks ago.

At the end of 1960, stocks of lead in all forms held by smelters and refiners stood at 315,291 tons, says the American Bureau of Metal Statistics. This was an increase of 14,400 tons over the previous month and was the highest total since January 1959—when inventories hit 315,477 tons. These inventories have risen now for 13 consecutive months and equal slightly more than four months' consumption at the average 1960 rate.





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# GREEN SEAL ARE CODED TO 1/32"

perfectly for longer, more trouble-free service

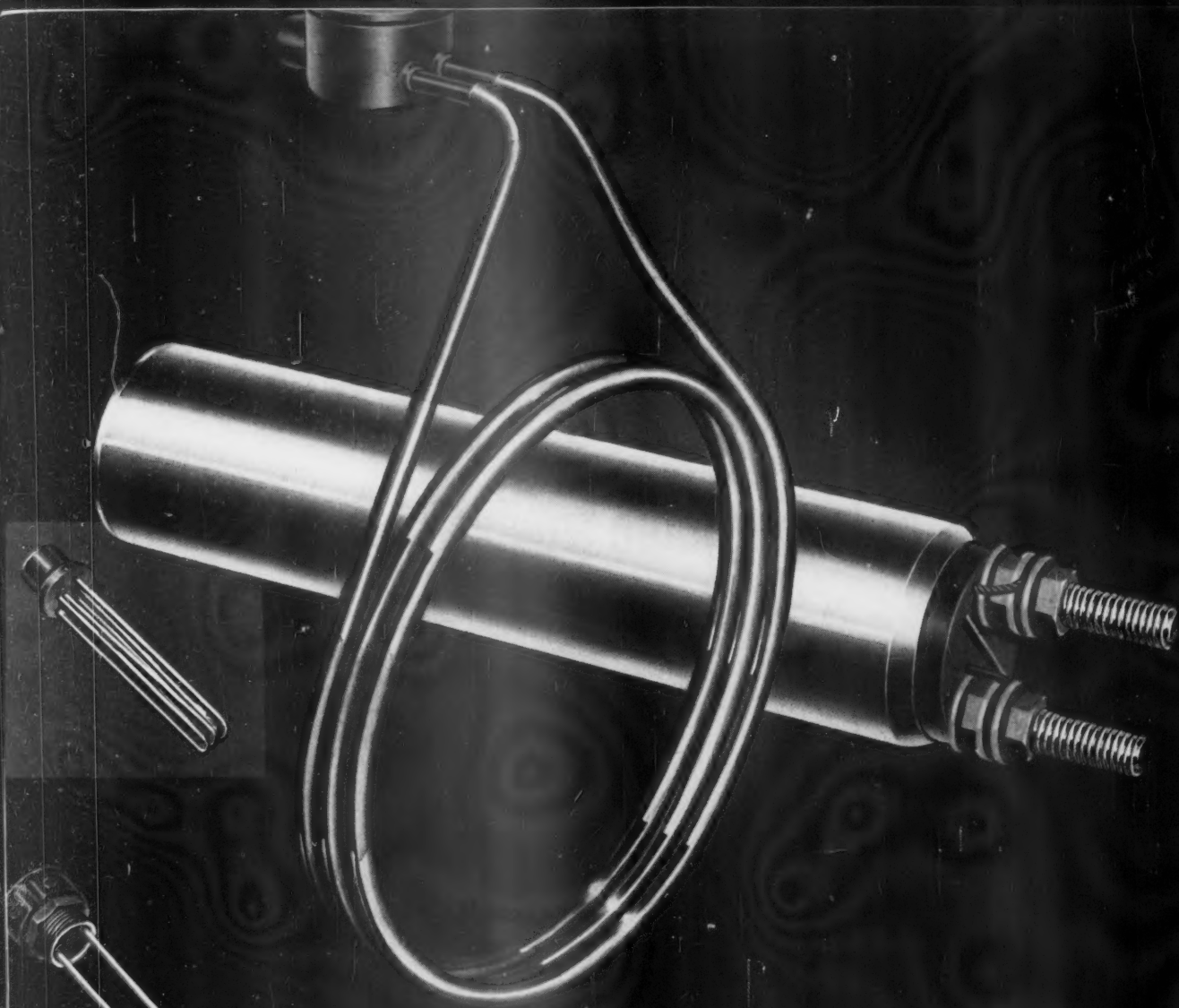


LENGTH-CODING GREEN SEAL V-BELTS TO 1/32"—NOT JUST 1/10", LIKE MOST BELTS—takes this ultra-precision machine. Only Goodyear has this type equipment, which is set by means of fine tolerance steel templates to insure accuracy. Machine readings are in the actual code numbers used to eliminate errors.

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when the heat is on . . .

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## Metalworking Industries Hit Hardest by Recession

**T**HE HARD core of the recession lies in the metal fabricating industries. This shows up strongly in what has happened in inventories and employment.

A Department of Commerce analysis of inventory trends shows that the metal consuming industry accounted for most of the inventory shift last year. During the early months of

1960, it rebuilt its steel stocks. This was followed by sharp liquidations, with inventories of raw materials and in-process stock substantially cut during the fourth quarter of the year.

Government statistics show that the high point in inventory accumulation occurred in June 1960. In the last six months of the year, the level of inventory

declined by \$1.2 billion. Even with this sizable year-end liquidation, however, business inventories rose by \$2.8 billion for 1960 as a whole.

This indicates to Commerce analysts that there is still room for inventory cutting. They anticipate that liquidation will continue until sales volume builds up in the durable goods sector.

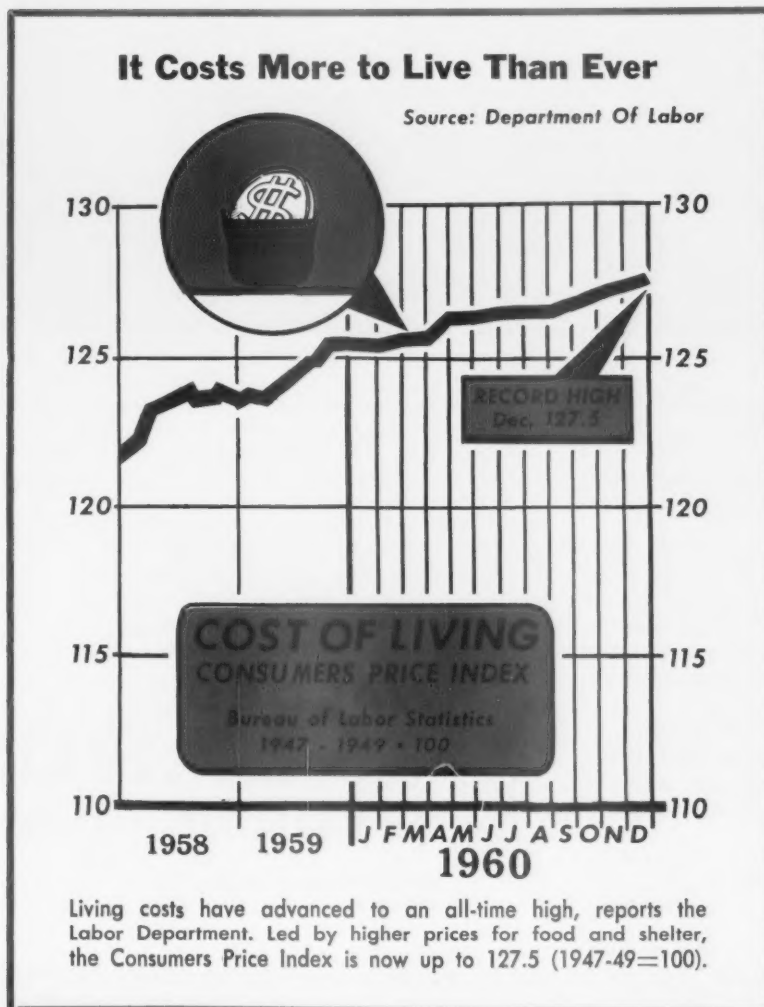
The same type of picture is projected from employment trends. Department of Labor economists report that the number of factory workers has dropped by 900,000 during the past year—with roughly two-thirds in fabricated metals industries. This provides an important indicator of how the government will proceed in tackling the recession.

A spring upturn is expected which will quicken the demand for goods and services and increase the level of employment. Based on no change in the current underlying economic factors, the normal seasonal improvement in the economy will see the number of jobless reach a record 5.5 million in February. Unemployment will then recede in March to 5.3 million, drop in April to 4.8 million, and fall again in May to 4.6 million.

### • Kennedy's Recovery Plan Criticized

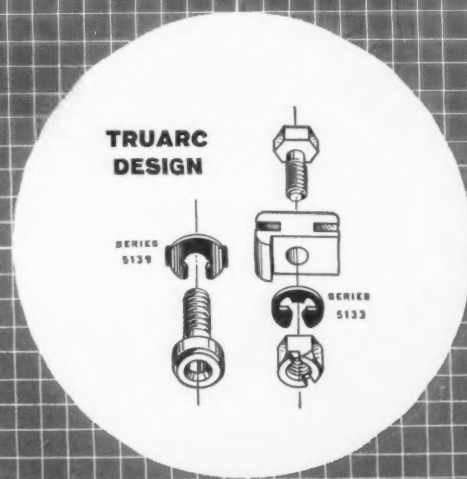
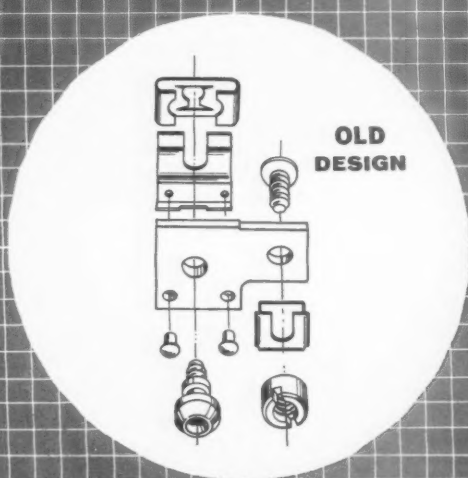
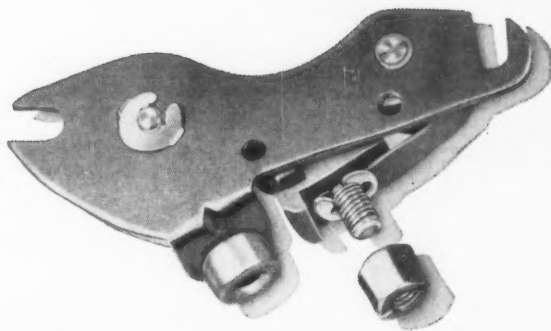
The first efforts of the Kennedy Administration have all been designed to lighten some of the impact of the recession and to hasten and round out the spring upturn. Beyond that point, the Administration effort will be directed toward expanding demand—especially toward stimulating the metal fabricating industry.

However, the Kennedy 12-point recovery program has been criticized by his conservative opposition as profligate and by labor spokesmen as not go-



# How Truarc rings simplified design

## and saved \$60 per 1000 units



**Look behind this big saving** in parts on the auto contact points made by Shurhit Products Inc., Waukegan, Illinois. One Truarc Ring replaced an expensive special purpose fastener. Another eliminated a clip and retaining plate which were 4 times more expensive and difficult to assemble. A third replaced a special purpose nut.

Equally important, besides simplifying and improving design, Shurhit reduced the over-all size of its auto points by  $\frac{1}{4}$ " and reduced assembly time by 50%. *Savings: \$60 per 1000 units.* Let Truarc Rings help cut your basic manufacturing cost by simplifying design and making assembly faster and easier. Rings often contribute highly saleable compactness as well!

### WHY TRUARC RINGS BELONG ON YOUR PRODUCT

They offer a simple and effective way to locate, retain or lock components in place. They fit into grooves inside bores and housings. They work as effectively on shafts or studs (some without grooves).

**More than a fastener!** Truarc Rings act as a component by replacing machined shoulders, threaded fasteners, rivets and other fastening devices. What's more, they often eliminate

threading, tapping, drilling and other machining operations. **Available in 50 types** (some with up to 98 sizes), in 6 metals, and 13 finishes—Truarc Retaining Rings can be conveniently ordered from more than 100 stocking points throughout the U. S. A. and Canada.

**Read about** the impact of Truarc Rings on more than 70 different designs (your product type may be among them) in our Catalog RR 10-58. For *immediate* action call your nearest **Authorized Truarc Distributor.** Look under "Rings, Retaining" in the Classified Telephone Directory. C-1



## WALDES TRUARC® RETAINING RINGS

WALDES KOHINOOR, INC.,  
47-16 Austel Place, Long Island City 1, N. Y.

9 OUT OF 10 PRODUCTS CAN BE IMPROVED WITH TRUARC RETAINING RINGS

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For More Facts Write No. 167 on Information Card—Page 32



## Washington Report continued

ing far enough. Briefly, the 12 points call for:

(1.) Greater availability of money—at lower interest rates for long-term investment.

(2.) Stimulated housing construction through lower mortgage rates and more attractive terms.

(3.) Temporary unemployment insurance extension.

(4.) Expansion of the U.S. Employment Service to provide a more competent force of job-getting aides.

(5.) Aid to dependent children of the unemployed.

(6.) Distressed area redevelopment program.

(7.) Distribution of surplus food to the unemployed.

(8.) Increase in payments under Old-Age, Survivors, and Disability.

(9.) Early payment of veterans' life insurance dividends.

(10.) Increase in minimum wage on a graduated basis to \$1.25 an hour, with coverage broadened to include an additional 4.3 million people.

(11.) Accelerating government procurement and construction.

(12.) Channeling federal contracts into labor surplus areas.

Many of these recommendations are not controversial and have been followed by the federal government in past recession cycles.

Nevertheless, spokesmen for the Chamber of Commerce of the United States take the position that massive doses of anti-recession aids are not needed. Dr. Emerson P. Schmidt, chief economist for the Chamber, says "that the economy could pull itself up on its own. An end to the decline of business inventories, alone, would be a strong plus factor".

On the other hand, Walter P. Reuther, who in addition to his leadership in the auto union is chairman of the AFL-CIO Economic Policy Committee, says that the 12 points do not go far enough.

Reuther wants to add a temporary tax cut when unem-

ployment reaches 7% of the work force, increase the amounts, as well as the duration, of unemployment benefits, step up the minimum wages to \$1.25 an hour immediately, make an even sharper cut in FHA interest rates, and begin a much more enlarged public works program.

### • Defense Dept. Revises Procurement Rules

The Department of Defense has revised its military procurement regulations in accordance with recommendations by the procurement subcommittee of the Senate Armed Services Committee.

The changes are mainly procedural and do not involve major alteration of policy. Two changes are significant, however. One states affirmatively a preference for formal advertising whenever practicable.

Previously in borderline cases, given the choice between negotiated bids and formal advertising, the military purchasing officers largely inclined toward negotiation. Under the new regulation, the purchasing officer is directed that "purchases and contracts for supplies and services shall be made by formal advertising in all cases in which the use of such method is feasible and practical under existing conditions and circumstances".

The second important change was made as the result of the recommendation that the regulation on incentive contracts be amended. A contractual provision will now be included permitting adjustment of the target cost to exclude any amounts by which it was increased because of inaccurate, incomplete, or out-of-date data submitted by the contractor.

The Department of Defense modified its procurement regulations to cover any negotiated fixed-price type contract expected to exceed \$100,000.

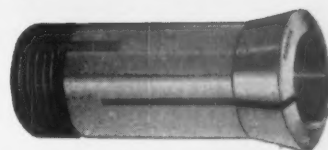
—A. N. Wecksler

# When You Think

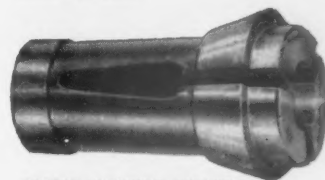
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### The Fuel Outlook:

- Coal faces continued loss of markets
- Gas troubled by pricing problems
- Petroleum supply adequate

By W. Norman Sims,

General Purchasing Agent, Basic Carbon Section,  
American Cyanamid Co.

**M**ANY unknown quantities face fuel suppliers today. The uncertainties of the new Kennedy Administration, the possibility of more government controls on imports, the chances of aid to distressed areas, and world politics all have a bearing on the future of coal, gas, and petroleum.

Nevertheless, there are some prospects for the various fuels that can be analyzed. Let's look at the situation for each commodity:

**COAL**—The coal industry has continued to mechanize in order to increase productivity and decrease the comparative cost. In most areas where coal is normally marketed, a good job has been done in this respect. However, certain markets, such as domestic heating and railroad fuel, appear lost to this industry.

Coal vendors must therefore look to two major industries—the utilities and steel—for more than 60% of their total market.

Anything that effects these two industries has a major effect on the coal industry.

The power generated in this country has continued to increase each year, as has the total amount of fuel required. However, the increases have not been in the same proportion, since many efficiencies in fuel consumption have been realized. Since the demand for electric power will continue to grow and coal is still the basic fuel in many sections, this industry should expect an even greater percentage of its total production to end up as electricity.

Steel presents a different picture. This industry has had a great deal of publicity during the past two years as a result of a prolonged strike and a reduced operating rate. Presently, the steel industry has a surplus of capacity over normal requirements. When any facilities are idle, they are usually in the inefficient older plants. This has

resulted in the lowest coke to steel ratios in history, which may be as much as 10%.

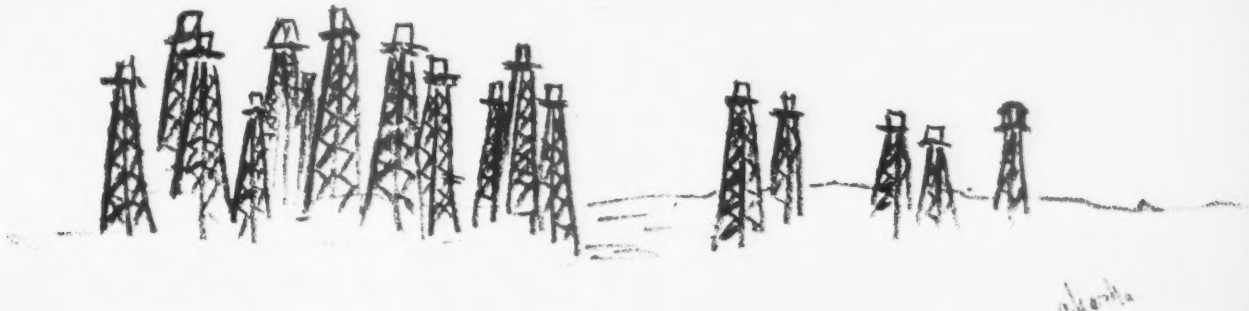
Other technological developments have also tended to reduce the coal required to produce steel. The use of natural gas, coke oven gas, and fuel oils—some directly in the blast furnace—has increased efficiencies and capacities and has reduced the amount of coke required per ton of steel produced. Coal would probably be a cheaper fuel if it could be used without coking first, but this does not appear to be feasible at present.

There is research being conducted now on the direct reduction of iron ore to steel. But the blast furnace is still a rather efficient piece of equipment and so the current development work is not likely to have a major effect on the use of coal by the steel industry.

#### Steel Might Use More

Thus a major increase in steel requirements by American industry must come before steel's demand for coal will exceed previous peak years. Despite this fact, steel will continue to be one of the two major customers of coal.

Requirements of other coal consumers will increase or decrease according to the general business cycle. Most of the inroads by competing fuels have already been made, with the exception of natural gas at seasonally low prices in off peak seasons. (Turn Page)







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### Fuel Price Prospects

**Petroleum**—Steady prices; a major effort to maintain present markets

**Gas**—Rising prices; markets expanding

**Coal**—Steady prices; continued dependence on utilities and steel

For the immediate future then coal will continue to be readily available at prices almost where they are today.

**GAS**—The natural gas industry reached maturity at a much later date than coal and is still growing quite rapidly. Its future expansion could be seriously affected by the result of an appeal now before the Supreme Court. The court's decision will determine whether or not the Federal Power Commission has authority to regulate the end use of natural gas. If the Supreme Court rules against the FPC, then it will be possible under certain conditions for a consumer of gas to purchase it at the well and have a transmission line transport it as a common carrier. This could make cheaper gas available for certain large consumers, who might substitute it for some coal and fuel oil.

Under existing conditions, the gas industry is continuing to expand and reach areas never before served with natural gas. The principal markets are homes, commercial enterprises, and industries requiring the special features of natural gas. Since a lot of these uses (particularly home heating) are seasonal, there are times when the gas supply in the market area exceeds the normal demand. As most gas is sold at the well on a firm basis, it is necessary to sell a large volume in the summer months to abide by purchase agreements. The utilities are logical customers for such gas and their P.A.'s often replace

coal and fuel oil to take advantage of special offers.

As Americans continue to move to the suburbs, the problem of seasonal use will become more acute. The more homes, the more gas required in the winter and the less in the summer. Large apartment buildings can normally operate more economically on heavy fuel oil or coal in many areas and therefore do not provide a ready market for natural gas.

The gas industry has another problem; reducing the cost of discovering new supplies. Gas transmission costs are also increasing.

Certainly, the continued increase in the price of gas to compensate for higher costs cannot go on indefinitely. Substantially higher prices could make it unattractive to most markets. However, gas prices will probably continue to rise at somewhat the same rate as the present—and these increases are likely to be passed on to industrial and consumer users. This will narrow the fuels choice for many industrial and utility purchasing agents, who will tend to buy gas only on a seasonal basis. Of course, those processes which require gas as a raw material will continue to use it, but there will be more of a concentration of these industries in the gas producing areas.

**PETROLEUM**—There appears to be an adequate supply of all of the petroleum fuels in the world, but the supply, is not necessarily where the market is located. Largely because of pressure

from the independent producers and the coal industry, the United States has imposed import quotas on the quantity of petroleum products that may be imported.

These import quotas have had a more serious effect upon the coastal markets to which the imported products may be shipped economically. There is no great petroleum surplus today and prices are considerably higher than last April and May when many were well below normal). In addition, the cold weather in recent months has had the effect of increasing prices on a seasonal basis.

### Oil Losing Home Markets

The fuel oil companies will probably continue to lose more of the home heating market to natural gas—which will create a problem in marketing distillate products. At the same time, this may decrease some of the seasonal uncertainties of the gas producers. The general outlook is for no major change in the prices or the availability of fuel oil products.

There does not appear to be any major new development in fuel research that will change the known fuels in the immediate future. Such developments in the distant future should not be ruled out, however. Atomic energy may eventually become a factor, but this is probably a long way off.

In summary, this is the outlook for the major fuels: The gas industry will continue to grow and the price will rise. This industry will take part of the distillate oil market and will affect the heavy oils and coal when "dumped" in off peak seasons. The growth of both fuel oil and coal will probably go hand in hand with our general economy and growth. There won't be any major change in the prices of petroleum and coal nor will there be any supply shortages.

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## Purchasing Follow-up

### Anti-Trust Ruling May Change Industrial Pricing

The anti-trust decisions in the electrical industry will supply food for thought to many industrial companies and their customers. (See the Editorial on p. 69). Undoubtedly municipalities and many private customers will seek to recover "overcharges", if they can prove their case. Even though the Justice Department did obtain pleas of guilty to seven of the most important of twenty indictments, it will be difficult to prove "damage."

It must be shown that actual

monetary damage was suffered because of the conspiracy to rig prices. Manufacturers, backed by their cost records, will seek to show, in their defense, that the prices quoted were low and in some instances unprofitable.

Industrial producers may well seek to change their method of pricing to eliminate the charge of price fixing in the future. Purchasers may soon have the opportunity of examining basic cost figures on heavy items as the manufacturers attempt to prove that they are strictly on the level and charging only enough to cover costs plus moderate profit.

### G.E. Speeds Up Meter Deliveries

The General Electric Co. has announced a reduction of 75% in the delivery time of single-phase watt-hour meters.

Use of pre-assembled basic components has made it possible to reduce factory shipping time of the meters from four weeks to five working days. Under the new system, meters require only attachment of the register, testing, and packing before shipment to the customer.

The reduced lead time applies to single-phase watt-hour demand meters and to transformer-rated single phase meters. Watt-hour demand meters with dual-scale registers can be shipped in 6 to 12 working days.

### First Years Roughest For Small Business

In a Management Research Summary issued by the Small Business Administration, the consensus was that small companies find the first five years are the hardest, with the second year being particularly difficult.

The summary, based on a study covering the Hartford, Connecticut area, was completed by the School of Business Administration, University of Connecticut.

During the first five years, 70% to 75% of the closings occur, with second year closings accounting for the largest segment of business failures.

### Office Equipment Show In New York in April

Office Equipment Manufacturers Institute is planning its first business equipment show in the New York area. The exhibit is scheduled for the New York Coliseum, April 17th through the 21st.

The exposition will occupy two floors of the Coliseum, and a wide variety of new products, from typewriters to electronic data processing equipment, will be on display for office equipment buyers. A crowd of 60,000 is expected to turn out.

### VA Stressed at Supplier Day Meeting



More than 40 vendors showed up for the suppliers' day program staged by American Standard's Plumbing and Heating Div. Visiting suppliers were briefed on American-Standard's purchasing policies and objectives, went on a plant tour and were given a chance to examine representative products made by the company. Main emphasis at the meeting was on the need for supplier help in value analysis. Director of purchases W.H. Mansfield described the purpose of the program this way: "One of our major objectives was to help our suppliers plan their engineering, manufacturing and sales efforts to meet our needs and reduce our costs."

Shown here just before the start of the program are several of the American-Standard executives who took part in the meeting (l. to r.): W.H. Mansfield, director of purchases; E.W. Forth, vice-president, research and engineering; L.R. Morris, Sr., value analysis engineer; C.J. Callanan, marketing manager; H.C. Monroe, Jr., general purchasing agent.

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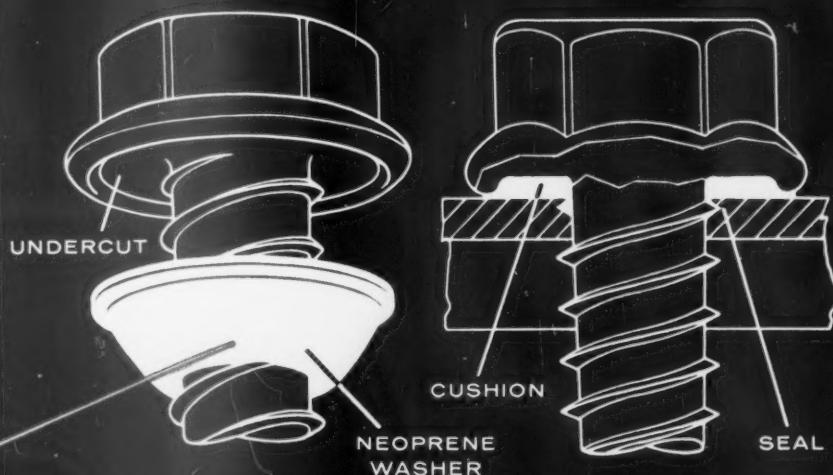
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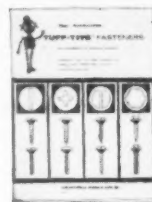
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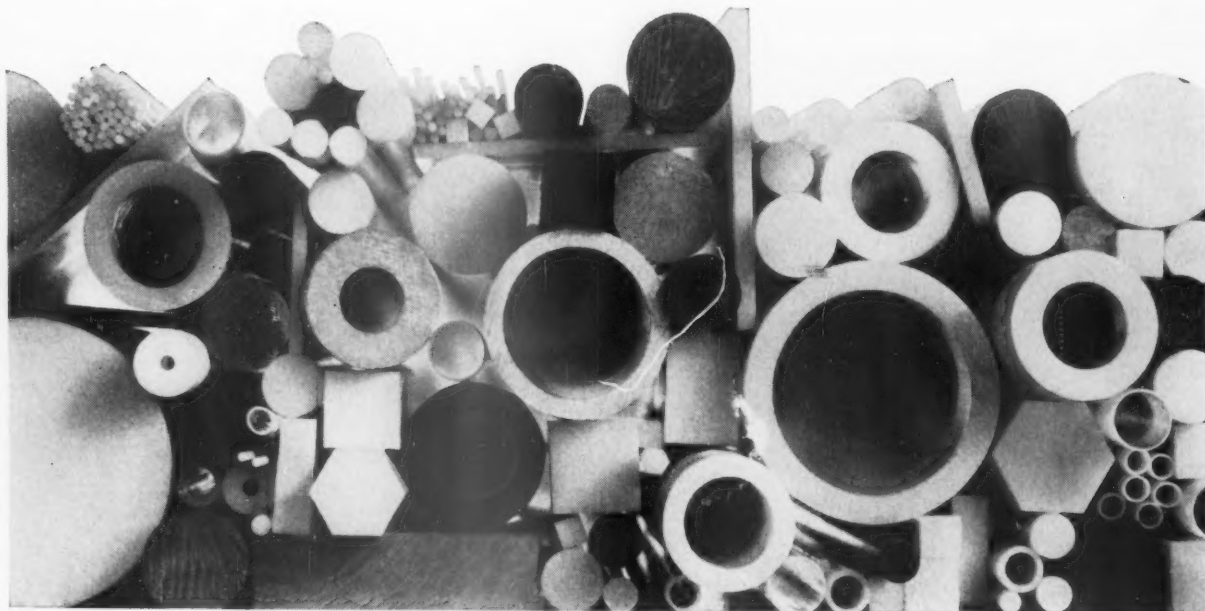
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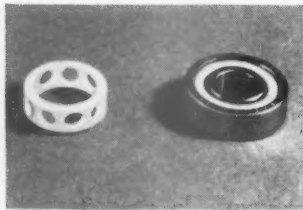
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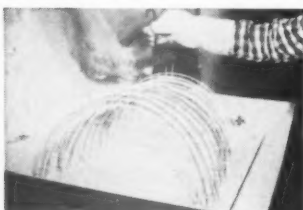
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Cut to order from 25" lengths. Wall thicknesses from  $\frac{3}{8}$ " to  $1\frac{1}{4}$ ". Width and height from 3" x 3" to 8" x 8". Machined square and parallel within .005" per foot on all surfaces except ends and interiors of hollow shapes.

#### EX-CELL-O FOR PRECISION

EX-CELL-O PRECISION PRODUCTS INCLUDE: MACHINE TOOLS • GRINDING AND BORING SPINDLES • CUTTING TOOLS • RAILROAD PINS AND BUSHINGS • DRILL JIG BUSHINGS • TORQUE ACTUATORS • GAGES AND GAGING EQUIPMENT • GRANITE SURFACE PLATES • ATOMIC ENERGY EQUIPMENT • AIRCRAFT AND MISCELLANEOUS PRODUCTION PARTS • DAIRY EQUIPMENT

#### Machinery Division

**EX-CELL-O**  
CORPORATION  
DETROIT 32, MICHIGAN 60-7



# Information For Your Catalog Files

## AIR GAGING

Catalog No. 615 describes principles and applications of air gaging. Sections are devoted to air capsules, special fixtures, and wide tolerance gaging. Also covers accessories.

**Taft-Peirce Manufacturing Company**

Write No. 1 on Information Card—Page 32

## CAP SCREWS

Form 2707 describes high performance socket head cap screws with two to four times the fatigue life of comparable industrial fasteners. The four-page technical bulletin gives application data covering the principle mechanical properties. Illustrations highlights design and fabrication features.

**Standard Pressed Steel Co.**

Write No. 2 on Information Card—Page 32

## ELECTRIC MOTORS

Bulletin 2651 outlines electric motors for a broad field of application requirements. The eight-page catalog features 23 types with photographs and brief descriptions. Includes squirrel cage, wound rotor, vertical pump, immersible, rapid-reversing, and pancake motors.

**Louis Allis Co.**

Write No. 3 on Information Card—Page 32

## ELECTRONIC PRODUCTS

A catalog on a variety of electronic products. Includes both standard and special designs. Assemblies are pictured with drawings showing dimensions for chassis cutouts. Also has specifications.

**Accurate Electronics Corporation**

Write No. 4 on Information Card—Page 32

## FLUORESCENT LIGHTING

Bulletin F gives details on a line of industrial fluorescent lighting fixtures. Describes a full line of accessories—including sliding hanger assemblies for suspending units, prismatic diffusers, and louvers.

**Thomas Industries Inc.**

Write No. 5 on Information Card—Page 32

## FORK LIFT TRUCKS

Bulletin #670 describes electric fork lift trucks. The four-page folder covers speed control and the truck's super-heavy, electrically welded steel frame. Also includes advantages and specifications.

**Lectro Lift**

Write No. 6 on Information Card—Page 32

## GLASSED-METAL PIPE

Bulletin #987 describes glassed-metal pipe, valves, and fittings. The 16-page catalog contains cutaway drawings, complete specifications, and dimensions for all components discussed. Also includes four photographs.

**Pfautler Permutit Inc.**

Write No. 7 on Information Card—Page 32

## INDUSTRIAL FIRST AID

Catalog No. 60 describes types of industrial safety equipment. The eight-page bulletin includes photographs, charts, and illustrations.

**E. D. Bullard Company**

Write No. 8 on Information Card—Page 32

## LAMP BALLASTS

Bulletin GEA-7313 describes features and advantages of totally weatherproof fluorescent lamp ballasts. The four-page publication discusses typical ballast applications and contains a table of list prices.

**General Electric Company**

Write No. 9 on Information Card—Page 32

## LATEX

An eight-page booklet on industrial uses of latex. The bulletin lists physical properties and suggested applications for more than 20 synthetic latices. Includes descriptions of "hot", "cold", copolymer, terpolymer, resins, creamed, and centrifuged latex types.

**United States Rubber Company**

Write No. 10 on Information Card—Page 32

## LIQUID METERS

A four-page circular describing and illustrating 1½ in. stainless steel meters capable of handling corrosive and non-corrosive liquids. Contains specifications, points out advantages, and covers features—including positive adjustments, easy-to-read numerals, and convenient totalizer.

**Neptune Meter Company**

Write No. 11 on Information Card—Page 32

## POTENTIOMETERS

A 28-page technical catalog on precision potentiometers. Includes detailed specifications, outline drawings, and general information covering a wide range of miniature and full-size units from ½ in. diameter to 5 in. diameter.

**DeJur-Amsco Corporation**

Write No. 12 on Information Card—Page 32

# NOW A Continental Counterbore Set for New Standard Socket Head Screws!

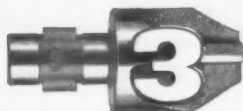
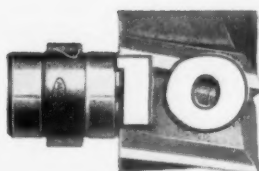


Designed especially for the stronger, safer 1960 Series socket head cap screws, the Continental No. 1B Standard Toolroom Set provides a wide range of sizes in a cost-saving, space-saving tool set. Supplied in a sturdy, fitted oak box, and equipped with a complete lineup of tools in the most-used sizes, the No. 1B gives you traditional CTW

quality and performance for toolroom or job shop counterboring, spot-facing and countersinking operations.

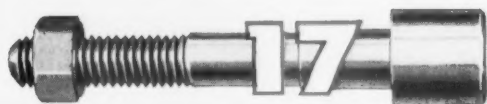
Call your local Ex-Cell-O Representative, or contact Continental Tool Works for details on the full line of CTW Counterbore Sets, and standard and special cutting tools and broaches.

## STANDARD TOOLROOM SET NO. 1B CONTAINS:

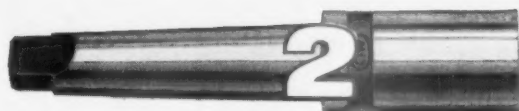


10 hand-detachable CTW Counterbores for #6 through  $\frac{5}{8}$ " dia. screw heads.

3 self-centering, hand-detachable CTW Countersinks.



17 hardened and ground counterbore pilots.



2 CTW Holders with non binding, "twist of the wrist" release action. (Available with Morse taper or straight shank.)

"No one has ever reported failure of a Continental Counterbore Drive!"

60-60

Continental

CTW

TOOL WORKS

DIVISION OF

EX-CELL-O  
CORPORATION  
DETROIT 32, MICHIGAN

# "Call FOSTER for track... PLUS"



Whether you call for a big shipment of "high iron" or a single guard rail, Foster gives you track "plus"—all the rail you need, and all the accessories and tools to complete the job.

You can get any standard rail sections including lower-cost Foster Quality Relays, frogs, switches, tie-plates, accessories, tool cars and dollies, hand tools, gauges, levels and other track items including CRANE RAIL. We will also supply steel-sheet piling and construction products for maintenance-of-way.

Another "plus": Foster's warehouses are located all over the country, all carry large stocks. So you get the advantage of "complete package" shipments, lower freight rates, prompt deliveries. For assistance in ordering, call the Foster Track Specialist near you.

Write **L. B. FOSTER CO.** for Track Catalog PA-2  
Pittsburgh 30 • New York 7 • Chicago 4 • Houston 2  
Los Angeles 5 • Atlanta 8 • Cleveland 35



## *Faster From Foster*

Pipe • Piling • Rail

For More Facts Write No. 179 on Information Card—Page 32

## Catalog Files

### PULLEY PULLERS

A four-page brochure that describes and illustrates 5-, 20-, and 50-ton hydraulic pulley pullers. Includes a set of new accessories, including a quick-link chain attachment and ten ram adapters.

**Industrial Engineering  
Equipment Company**

Write No. 13 on Information Card—Page 32

### REINFORCED PLASTICS

A guide booklet containing data on reinforced plastics. Covers hand lay-up laminating, spray-up molding, matched metal die preform technique, premix, pre-peggs, and filament winding.

**Society of the Plastics Industry**

Write No. 14 on Information Card—Page 32

### SOLENOIDS

Leaflet #5 shows basic application principles of rotary solenoids. The two-page, illustrated sheet shows how the solenoids are used to drive rotary switches, operate shutters or vanes, or actuate remote counters.

**Ledex Inc.**

Write No. 15 on Information Card—Page 32

### TIMING MOTORS

An illustrated catalog on timing motors and time and torque controls. The eight-page folder provides complete description of various units and applications. Includes dimensions and special design characteristics.

**General Time Corporation**

Write No. 16 on Information Card—Page 32

### VALVES

An illustrated catalog on valves for quick, easy reference. The entire line is presented in a single complete chart. Air and solenoid pilot operators are illustrated in Bulletin 60-2 and coordinated in the chart with compatible valves. Cutaway drawings show construction features, sealing arrangements, poppets, and flow pattern through valves in normal position.

**Hoffman Valves, Inc.**

Write No. 17 on Information Card—Page 32

For More Facts About Ad  
on Facing Page Write in No. 180→



when  
it  
comes  
to  
your  
product's  
reputation...

DON'T  
PUSSYFOOT!

*The new symbol  
of Shakeproof quality in action!*

T. M.



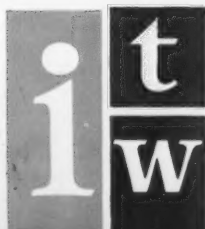
**ORDER A SHAKEPROOF SAMPLE KIT** . . . prove superior Live Action locking yourself. Includes washer test samples and booklet with test data, information on all washer sizes and types including custom-designed "Specials". Write for yours.

**Demand genuine Shakeproof® Live Action Lock Washers**—never accept a substitute! It just doesn't pay off. As a matter of fact, anything less than Shakeproof quality may pay you back in dissatisfied customers, lost business, extra service time and factory rework.

Live Action takes the risk out of fastenings. Shakeproof's exclusive 3-way combination of multi-toothed line bite . . . built-in spring reaction that holds harder under stress . . . and bracing strut action—rigidly opposes loosening—assures a permanent fastening.

Test-after-test proves Shakeproof Live Action locking superiority. You can prove it, too! Order a Shakeproof Sample Kit—we'll send you a selection of Shakeproof Lock Washers to test as you see fit.

Don't pussyfoot. . . make tracks to Shakeproof for the lock washer that never compromises your product's reputation.



**SHAKEPROOF** "FASTENING HEADQUARTERS"

**DIVISION OF ILLINOIS TOOL WORKS** • St. Charles Road, Elgin, Illinois  
In Canada: SHAKEPROOF/FASTEX, Division of Canada Illinois Tools Ltd.  
67 Scarisdale Road, Don Mills, Ontario

Copyright Shakeproof, Division of Illinois Tool Works, 1961



## Enduring Bronze

### *Commemorates Another Presidential Inaugural*

ONCE AGAIN, the Presidential Inaugural Medal is made of beautiful, lasting bronze . . . Bristol bronze made *Bristol Fashion*.

Paulanship, distinguished American sculptor, prepared the original model from which the medal and replicas were reproduced by Medallic Art Company of New York City.

Special bronze alloys, carefully prepared to precise specifications, are continually prepared in our mills in Bristol for commemorating this and other historic events. This memorable medal may be obtained for \$4.50 each from The 1961 Inaugural Committee, Liberty Loan Building, 14th and D Streets, S.W., Washington, D. C.



**The BRISTOL BRASS CORPORATION**

*Makers of Brass Strip, Rod and Wire Since 1850 • Bristol, Conn.*

For More Facts Write No. 181 on Information Card—Page 32

# LONG AND STRONG...



## Continuous hinges by National Lock

Build recognized quality into your products with continuous hinges by National Lock. Neat, attractive and strong! Load is distributed evenly for greater bearing capacity, lasting ease of operation. Choose from a wide variety . . . equal or unequal wings, with springs or without, parallel or staggered holes, swaging to suit your needs. In steel, brass, stainless or aluminum. Precision-built by National Lock. Write for catalog today.

# **NATIONAL LOCK**

INDUSTRIAL HARDWARE DIVISION • NATIONAL LOCK COMPANY • ROCKFORD, ILLINOIS  
INTERNATIONAL DIVISION 13 E. 40TH ST., NEW YORK, N. Y. • CABLE: ARLAB  
FURNITURE HARDWARE • LOCKS • APPLIANCE HARDWARE • FASTENERS • PLASTICS • ALL FROM 1 SOURCE

For More Facts Write No. 182 on Information Card—Page 32





## LOCK WASHERS

IN



# "10 in 1"

**The Most Compact  
Decimal Package  
for Lock Washers**

The new Decimal Packaging System initiated by Positive lets you sell, buy, or stock lock washers in the 9 most popular sizes . . . all packaged and counted. Each outer telescope carton contains 10 inner cartons, each of which contains either 50 or 100 Positive Lock Washers, depending upon size.

- In sizes  $\frac{1}{16}$ " through  $\frac{1}{8}$ ", each outer carton holds 1000 (medium section) Lock Washers in 10 inner cartons . . . 100 in each.
- In sizes  $\frac{3}{16}$ " through  $\frac{1}{2}$ ", each outer carton contains 500 (medium section) Lock Washers in 10 inner cartons . . . 50 in each.

Each outer carton is a Standard Telescope Shelf-Carton with 2-Way End Labels. Can be stacked in the upside-down manner which prevents spilling or in the conventional manner—with upright end label either way.

**SEND FOR  
HANDY HOME  
ASSORTMENT  
IT DEMONSTRATES  
the "10-in-1" ideal!**

*Hurry!*



The Handy Home Assortment of Non-Link Positive Lock Washers will come to you in the new "10-in-1" Decimal Package. Instead of ONE SIZE it contains ALL 9 POPULAR SIZES of Non-Link Positive Lock Washers. The outer carton contains 10 small inner cartons each containing ONE of the Popular Sizes. It demonstrates the "10-in-1" package perfectly. Send for it today and see for yourself! You'll find many uses for the lock washers it contains . . . at home, or in your shop.

## POSITIVE LOCK WASHER CO.

183 Vanderpool St., NEWARK 5, N. J.

For More Facts Write No. 183  
on Information Card—Page 32

## Letters To The Editor

### TAKE A FLIER

Dear Sir :

The December 19 issue which carried a full-page ad by Magnetic Metals Company (page 181) certainly intrigued me. The illustration showing two pigeons with the caption, "Who gives fastest delivery of magnetic cores and laminations?" "Magnetic Metals, of course!", was the cause celebre as a quick check with a local ornithologist indicates that the pigeon just about beats the barnyard hen getting anywhere in a hurry.

Would not a nice high winged teal have illustrated the point more forcefully?

Eugene T. Turney, Jr.  
Anodyne Inc.  
N. Miami Beach, Florida

• *Since there's a chance that we might have a little trouble distinguishing between a speckle-breasted titmouse and a Great American Eagle, we remain neutral in this discussion. We've sent your letter to the agency that prepared the ad—perhaps they will want to take the matter to the Audubon Society for arbitration.*

### SECONDARY MATERIALS

Dear Sir:

I have just finished reading the article "Gullible Buyers Still Being Cheated" which appeared in the December 5 issue of PURCHASING Magazine. This article had been called to my attention by several of our members who were quite distressed at the inferences given by the article.

Apparently it was Mr. Lehrbaummer's purpose to call to the attention of purchasing executives some unscrupulous acts which he is familiar with. Some of these concerned scrap dealers.

I would like to call your attention to our organization, which has about 600 member firms throughout this country. They are dealers and brokers in and processors of various secondary materials. Our membership includes some of the leading firms who

handle non-ferrous metals, paper stock, textiles, rubber, plastics.

These firms, through their affiliation in our Association for almost 50 years, have created an industry of great economic importance. It is a proven fact that our country could not maintain its present economic standing—either in time of peace or emergency—without the secondary materials industry. I am sure that all purchasing agents are quite familiar with the importance of this industry.

The instances cited in this article are certainly not representative of our entire industry. Yet, some uninformed reader might well make the assumption that such practices were those commonly used in the scrap industry today. This is completely untrue and I certainly would have hoped that somewhere in the article there could have been something to indicate that the great overwhelming bulk of firms handling secondary materials today have excellent records of integrity and ethics.

We are quite proud of the record achieved by our industry and the firms in it and only regret that the article made no mention of this at the same time you were indicating certain isolated cases.

M. J. Mighdoll  
National Assoc. of  
Secondary Material  
Industries, Inc.  
New York 16, New York.

• *We asked the author of this article, Andrew L. Lehrbaummer, purchasing agent for the City of Milwaukee, to reply to Mr. Mighdoll's letter. His answer follows:*

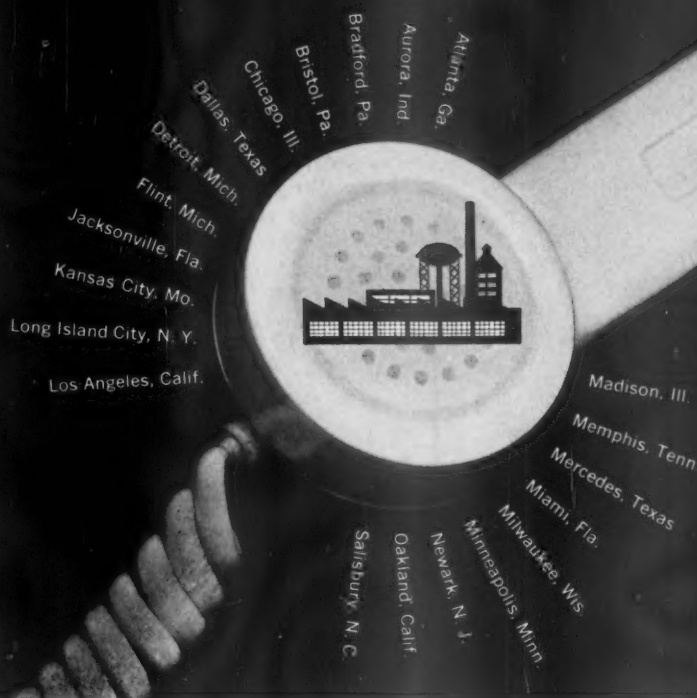
Dear Sir:

The part which the secondary material industries plays in our economy certainly is recognized. And, while your Association is doing commendably in the interest of scrap dealers generally, there are many individuals and firms not listed among your 600 members.

These apparently are responsible (Please turn to page 48)

For More Facts About Ad  
on Facing Page Write in No. 184→

ANOTHER REASON FOR CHOOSING  
OWENS-ILLINOIS CORRUGATED BOXES



**MR. STRONGBOX**  
An Owens-Illinois trademark

## How Owens-Illinois corrugated box plants are located to serve you

### LOCALIZED SERVICE FROM:

Atlanta, Ga.	Long Island City, N. Y.
Aurora, Ind.	Los Angeles, Calif.*
Bradford, Pa.	Madison, Ill.
Bristol, Pa.	Memphis, Tenn.
Chicago, Ill.	Mercedes, Texas
Dallas, Texas	Miami, Fla.
Detroit, Mich.	Milwaukee, Wis.
Flint, Mich.	Minneapolis, Minn.
Jacksonville, Fla.	Newark, N. J.
Kansas City, Mo.	Oakland, Calif.*
	Salisbury, N. C.

\*These plants are operated by  
National Container Corporation of  
California, subsidiary of Owens-Illinois.

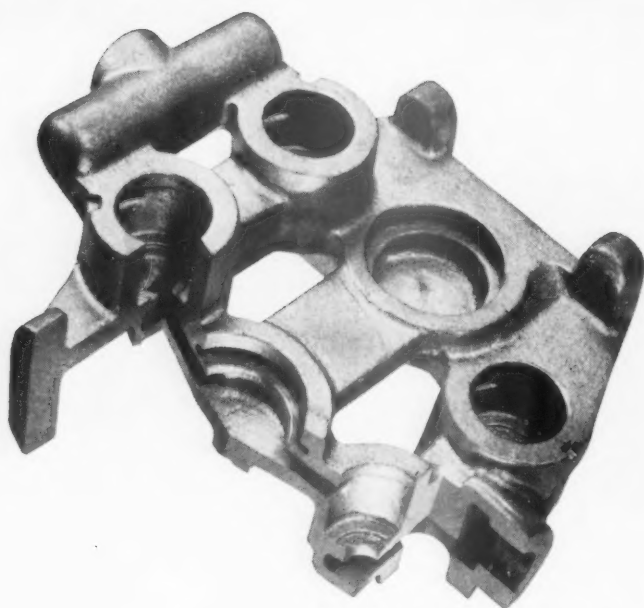
### Why not get in touch with the Owens-Illinois plant nearest you?

Whether you have a single or multi-plant operation, we are located to serve you. It takes only a telephone call to place our services at your disposal, whether you need a specific corrugated box design or general counsel on your shipping container problem.

You see, Owens-Illinois *means* localized service . . . on a national scale. At every plant you'll find highly skilled design engineers, specialists in the field of corrugated boxes. We have no stock answers. Our approach is to best serve *your* need.

PAPER PRODUCTS DIVISION  
FORMERLY NATIONAL CONTAINER

**OWENS-ILLINOIS**  
GENERAL OFFICES • TOLEDO 1, OHIO



## CAUSTIC SOLUTION

**A CASE IN POINT**—This is a 19 pound Ni-Resist valve body designed to handle caustic fluids at 400 psi. It was cast for the John Bean Division of Food Machinery & Chemical Corp. Ni-Resist is ideal for this application because it combines high corrosion resistance with superior resistance to erosion from high velocity fluids.

The intricate coring required demands unusual skill to produce Ni-Resist castings leak-proof at 400 psi operating pressures. Hamilton Foundry succeeded in producing pressure tight castings, an accomplishment difficult for the best of foundrymen.

When new and unusual design problems arise in the selection of metal and the casting of parts, you will find that the skill and integrity of your foundry is your best insurance that specifications—and delivery schedules—will be met.

GRAY IRON • ALLOYED IRON • MEEHANITE® • DUCTILE (NODULAR) IRON • NI-RESIST • DUCTILE NI-RESIST • NI-HARD



# HAMILTON FOUNDRY INC.

1551 LINCOLN AVENUE • HAMILTON, OHIO • TWINBROOK 5-7491  
For More Facts Write No. 185 on Information Card—Page 32

## Letters

(Continued from page 46)

ble for the experiences which the City of Milwaukee has had and which I related in the article. It was coincidental that the preponderance of the unethical ventures were in the handling of scrap.

I presume that most of your members are in the wholesale end of the business and, likewise, must adhere to certain precautions because of experience in dealing with some retail establishments.

In relating incidents in different fields, there certainly was no intent to discredit the scrap or any other industry. A closing remark that these cases were exceptions in the respective industries may have been appropriate and would have prevented some few readers from getting the wrong impression.

I am sure that you are just as anxious to eliminate these practices as the purchasing profession and significantly, when we can discourage questionable tactics, it will assist all of us.

Andrew L. Lehrbaummer  
City Purchasing Agent  
Milwaukee, Wisconsin

## COMPETITION DIES

Dear Sir:

In June of this year I completed my term as president of the Canadian Association of Purchasing Agents and had to reorient myself to my purchasing job.

One of my first projects was a "Welcome Booklet" directed to salesmen. It was done in a hurry, and I expected that I would do a more complete job later on. To my surprise the initial effort went over with a bang, and was almost in the best seller category.

Now I am working on a more comprehensive and informative version, and, among other things, I am toying with the idea of quoting the last three paragraphs of Paul Farrell's editorial in *PURCHASING* Magazine of August 29, 1960, ending with the words "for true competition then dies."

H. D. Wright  
The E. B. Eddy Company  
Hull, Quebec, Canada

PURCHASING





**How a nut  
can make  
(or break)  
your reputation**

*...and even bring in re-orders*

A nut comes loose. A wheel comes off. And down comes Billy! No great loss, except perhaps to his dignity. But when a lost nut knocks out a rock drill, or a tractor, or a piece of the heavy equipment that you make—then what?

*Down goes the machine! Down goes production—for no telling how long! And down goes your reputation as a maker of quality equipment!* You can blame it on the nut, but your customer blames you!

This kind of embarrassing and costly "Reliability" failure simply cannot occur when you specify Elastic Stop® nuts for critical bolted connections. For no matter how rugged or repeated the shock or impact, no matter how bone-shaking or constant the vibra-

tion... Elastic Stop nuts *simply will not work loose!*

Elastic Stop nuts with their exclusive, vibration-damping nylon locking inserts are nothing new. They have been widely used for over 20 years by an increasingly large number of quality-conscious manufacturers who have learned that Elastic Stop nuts give built-in insurance against product failure—the kind of reliability that shows up in customer maintenance records and adds up to reorders. Let us send you information showing how manufacturers have protected the reputation of their products with Elastic Stop nuts. Ask for Bulletin 5901. Dept. 847-215, Elastic Stop Nut Corporation of America, 2330 Vauxhall Road, Union, New Jersey.

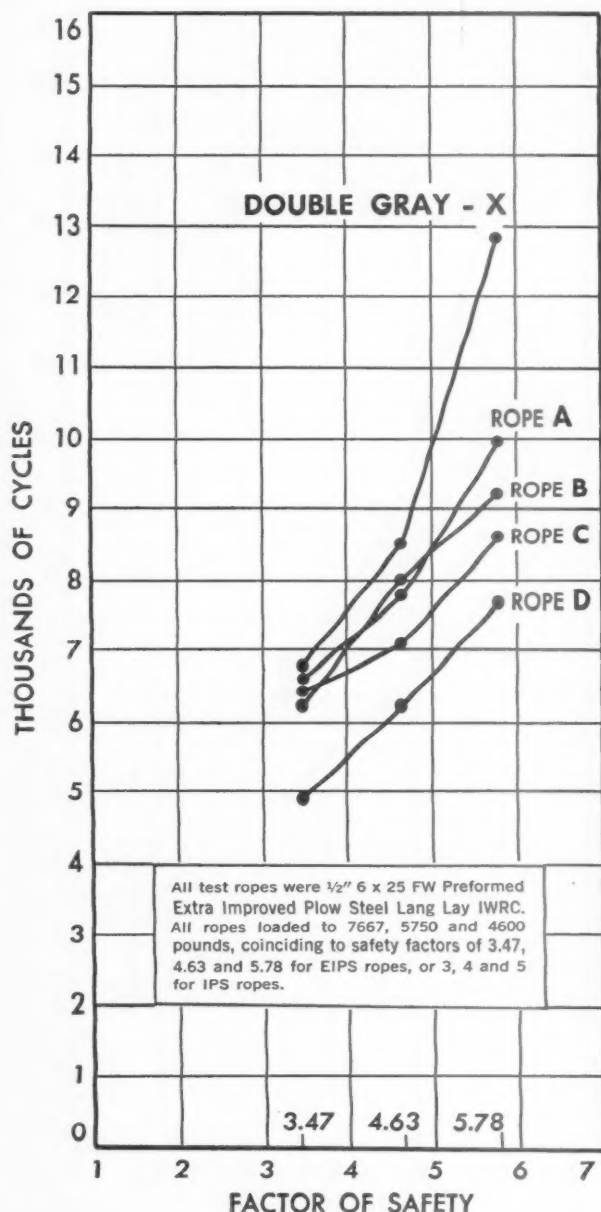


*for the ring*  *reliability*

**ELASTIC STOP NUT CORPORATION OF AMERICA**

# DOUBLE GRAY-X<sup>®</sup>

Laboratory tests prove that CF&I-Wickwire's premium wire rope has 45%\* more bending life than the average of other ropes tested



The CF&I-Wickwire engineers who developed Double Gray-X *believed* in their product. So confident were they of its superiority that they decided to field-test prototypes of Double Gray-X as soon as they were perfected. In the months that followed, the top American firms chosen to participate in these tests delivered this verdict: when the going really gets tough, Double Gray-X lasts longer than other wire ropes.

Now, CF&I presents additional proof that Double Gray-X has *superior resistance to bending fatigue*, the chief enemy of wire rope life. In an extended series of tests conducted over the past year at CF&I's Palmer Plant, Double Gray-X proved itself superior to four other wire ropes, all made by major manufacturers.

## HOW WERE THE TESTS CONDUCTED?

The five wire ropes tested—all identical in size and specification—all exceeded the catalog breaking strength of extra-improved plow steel ropes. Each rope was subjected to the same series of tests on a 25,000-pound, multiple-reeved fatigue machine, the largest of its kind. This machine punishes wire rope to destruction by bending it back and forth over sheaves.

\*Percentage above average of all other wire ropes tested at safety factor of 5.78

# lasts longer

## WHAT WERE THE RESULTS OF THE TESTS?

As the chart indicates, Double Gray-X lasted longer than any of the four competing wire ropes at all the safety factors used in the test. At the highest and most commonly-used safety factor, Double Gray-X lasted 30% longer than the rope that lasted next longest, and 68% longer than the rope that lasted the shortest time. Double Gray-X lasted 45% longer than the average of all other wire ropes tested at this safety factor.

## WHY DOES DOUBLE GRAY-X LAST LONGER?

It lasts longer because it's the result of a breakthrough in wire-drawing technique. This new process, which includes the use of molybdenum disulphide, creates these outstanding fatigue-resistance factors in Double Gray-X:

- **A Molecular Shield** — Molybdenum disulphide creates a shield around every wire, which serves as a lubricant and prevents the wires from grinding together as the rope operates. Less internal friction results in longer rope life.
- **Smoother Wire Surface** — CF&I's new wire-drawing technique helps eliminate minute surface imperfections in the wire. This smoother surface provides better resistance to fatigue.
- **Extra Toughness** — Molybdenum disulphide lubricates the wires during the drawing process. Since less power is required and less heat generated during this operation, the original toughness of the wires is better preserved.

## WHAT CAN DOUBLE GRAY-X DO FOR YOU?

It can save you money. Because Double Gray-X lasts longer on even the toughest jobs, it cuts wire rope repair and replacement costs and rope-installation time. The net result to you is an overall reduction of costly equipment downtime, and a lowering of your total wire rope investment.

As a matter of fact, those of our customers who have already bought and field-tested Double Gray-X have reported considerably longer life and less downtime on their equipment. Join these satisfied customers—try Double Gray-X on *your* equipment right away. Ask your CF&I salesman to give you complete details on these tests.



**The Colorado Fuel and Iron Corporation**  
DENVER • OAKLAND • NEW YORK  
SALES OFFICES IN ALL KEY CITIES

# Purchasing People In The News

Frank Allen Cain has been appointed manager-purchasing of the **Continental-Diamond Fibre Corporation, Newark, Dela.** Mr. Cain will be responsible for purchasing for all of the company's



Frank Allen Cain

plants with headquarters in Newark. He started his career with CDF in 1929 as an assistant purchasing agent. He has been assistant purchasing manager for the past six years. He graduated from the University of Delaware and is a member of the Philadelphia Purchasing Agents Association.

**North American Aviation** has announced the appointment of **Kenneth B. Gay** as director of material at the company's **Space and Information Systems Division, Downey, Calif.** Mr. Gay formerly was director of material for **Atomics International**, another division of **North American**. He has been with the company 20 years and has spent almost all that time in material operations. He was a material general supervisor with the **Los Angeles Division** before moving to **Atomics International**. Mr. Gay studied at the **University of Colorado** and is a member of the **California State Bar**.

Succeeding Mr. Gay at **Atomics**

**International** will be **Earl D. Needham**. Mr. Needham will be responsible for all purchasing, transportation and warehousing activities conducted by the company. He joined the company in 1958 as purchasing agent. Before that he was manager of production control and purchasing with **Solar Aircraft Company, Des Moines**.

**Colonel James J. Treacy** became deputy for procurement in the **Directorate of Procurement and Production at Headquarters, Air Material Command, Wright Patterson Air Force Base, Ohio**. He succeeds **Brigadier General Walter R. Graalman** who has retired from the Air Force.

The establishment of a new corporate purchasing function for **The Dow Chemical Company, Midland, Mich.** has been announced. The new function will be directed by **David C. Baird**, who will report to the chairman of



David C. Baird

**Dow's board of directors**. As director of purchases, Mr. Baird will be responsible for procurement for **Dow**, its divisions and subsidiaries, both domestic and foreign. He has been company pricing administrator since 1950 and

in 1960, was named assistant secretary and assistant treasurer. He has a B.S. degree from **Michigan State University**.

**Tennessee Eastman Company, Division of Eastman Kodak Company, Kingsport, Tenn.** has made the following appointments:

**Jay K. Gillenwater** has been named director of purchases and traffic and **W. H. Harrison** manager, chemical purchases.

Mr. Gillenwater started with Eastman in production in the summer of 1930; joined the sales department as a salesman in 1931; made assistant sales manager,



J. K. Gillenwater



W. H. Harrison

chemicals division in 1934; chemical buyer, purchasing department in 1942; assistant purchasing agent in 1945; purchasing agent in 1949; and director of purchases in 1953. In his new position he will be responsible for all purchases of materials, services, and transportation. He was educated at **Lincoln Memorial University** and **University of Virginia**. Mr. Gillenwater is a past director of the **National Association of Purchasing Agents** and a past president of the **Tennessee-Virginia Association of Purchasing Agents**. Mr. Harrison, a chemical engineer, has been connected in various capacities with the buying of chemical raw materials for the company since 1945. He joined the Eastman organization in 1937.

SEE PAGE 170 FOR MORE  
PURCHASING PEOPLE IN  
THE NEWS



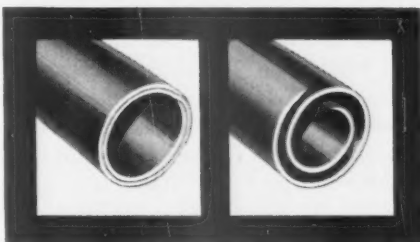


## Bundy can mass-fabricate practically anything

Bundy turns out simple or complex tubing parts with precision and promptness. Close tolerance parts fit right . . . cut rejects, reduce costs on the production line. This is the kind of precision component that is mass-fabricated from Bundyweld®, the steel tubing preferred by more and more purchasing agents. Bundyweld meets ASTM 254; Govt. Spec. MIL-T-3520, Type III. And because delivery delays can often be costly,

Bundy gets orders out to you fast . . . when you need them. Price? Bundy mass-fabrication makes possible very low unit costs. For the best in tubing call, write, or wire: Bundy Tubing Company, Detroit 14, Michigan.

\* \*




Bundyweld, double-walled from a single copper-plated steel strip, is metallurgically bonded through 360° of wall contact. It is lightweight, uniformly smooth and easily fabricated . . . has remarkably high bursting and fatigue strengths. Sizes up to 5/8" O.D.

## **BUNDY® TUBING COMPANY**

DETROIT 14, MICH. • WINCHESTER, KY. • HOMETOWN, PA.

WORLD'S LARGEST PRODUCER OF SMALL-DIAMETER TUBING. AFFILIATED PLANTS IN AUSTRALIA, BRAZIL, ENGLAND, FRANCE, GERMANY, ITALY, JAPAN.

For More Facts Write No. 188 on Information Card—Page 32



The difference begins in the acetate itself—fully cured in sheets of uniform texture, thickness and color.

Then, B&L Safety Frames are blanked and profiled from this acetate sheet—not molded from raw butyrate like most other safety frames.

The result—the strongest acetate frames you can buy, with none of the weld weak-spots inherent in all molded frames. Shown, the new Y-64 smoke color.

## WHY B&L ACETATE SAFETY FRAMES ARE 21% to 77% BETTER than molded butyrate frames

Every molded frame has two weak spots built into it—unavoidable weld lines that can split and release the lenses. Safety? We don't think so. That's why B&L frames are cut from pre-cured acetate sheets—to keep their strength uniform throughout. Compare the strength of B&L acetate with that of the molded butyrate used in most other safety frames:

Hardness, Rockwell R scale . . . . .	B&L, 21% harder
Tensile strength at fracture . . . . .	B&L, 38% greater
Tensile strength, upper yield . . . . .	B&L, 47% greater
Flexural strength at yield . . . . .	B&L, 53% greater
Compressive strength at yield . . . . .	B&L, 34% greater
Modulus of elasticity . . . . .	B&L, 77% greater

All this and comfort, too! Workers really wear B&L frames because your complete selection of sizes, nose pads and temples assures perfect fit. And they wear them because they like the trim profile and high lustre of B&L frames: flesh, brown, two-tone and the new smoke color.

Check with your B&L supplier on the extra safety in B&L "Protection-Plus" Acetate Safety Frames. Or write to Bausch & Lomb Incorporated, 90614 Lomb Park, Rochester 2, New York.

**BAUSCH & LOMB**

SINCE 1853

**Protection-PLUS  
Safety Products**

protection + economy + worker acceptance

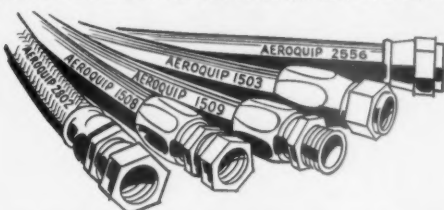
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# You get all these benefits when you specify Aeroquip Hose and Reusable Fittings



## PROMPT LOCAL DELIVERY

Delivery as close as your phone is assured by five factories, 2 warehouses, and a nation-wide network of more than 500 factory authorized distributors.



## 55 TYPES OF HOSE

There is an Aeroquip Hose and Fittings combination exactly suited to your need. Made to give you better service and long lasting economy.



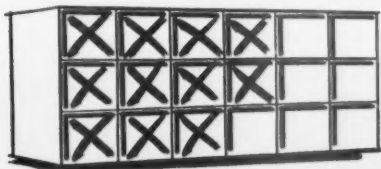
## RESISTS TEMPERATURE EXTREMES

Aeroquip Hose is available to withstand temperature extremes from  $-65^{\circ}$  to  $+450^{\circ}$  F. in constant flexing and high pressure service.



## HIGH PRESSURE RESISTANCE

Aeroquip Very High Pressure Hose will withstand up to 5000 psi. It helps reduce costly down time in the most severe use.



## REDUCED REPLACEMENT INVENTORY

Reusable fittings simplify inventory. All you need is a length of bulk hose and a few fittings to replace any flexible hose line. Replacements can be made on the spot, without special tools. Fittings are reusable over and over again.



Complete information on Aeroquip Hose and Reusable Fittings is given in Industrial Catalog No. 204, especially designed for replacement users. Mail the coupon for your copy. Your Aeroquip Distributor, a flexible hose specialist, is as close as your phone. See "Yellow Pages" under "Hose" for his number.

Please send me your Industrial Catalog No. 204.

NAME \_\_\_\_\_

TITLE \_\_\_\_\_

COMPANY \_\_\_\_\_

ADDRESS \_\_\_\_\_





This 35,000-pound giant is shown handling huge aluminum billets—four at a time.



The new "Acro-Smooth" the most modern, most efficient fork truck you can buy.

## An **ELPAR** fork truck for every handling job

1 to 20 tons capacity—with  
more than 40 standard models

Cut your truck operating costs with ELPAR fork trucks. Built to match the finest equipment in your shop, they need a minimum of maintenance and repair—even on the toughest jobs. And, they run on low-cost electric power.

There is a model for every handling task, and an experienced ELPAR representative to help you pick the best one for your plant.

**WRITE FOR THIS CATALOG**  
Get complete details  
on all ELPAR  
fork truck models.



**The  
Elwell-Parker  
Electric Company**  
4035 St. Clair Avenue  
Cleveland 3, Ohio

In Canada: International Equipment Ltd.



This is ELPAR's smallest fork truck line, easily maneuvered in narrow aisles.





Handling coils of steel weighing up to 20,000 pounds is a typical job for the ELPAR Titan Series.



Here is a rugged truck for handling heavy loads—yet it's small, fast and highly maneuverable.

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**NICHOLSON FILE CO.**  
 PROVIDENCE 1, R. I. U. S. A.  
*A File For Every Purpose*


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**SAW FILES**  
INDICATES ON THESE COARSE FILES ARE USED FOR SHAPING HARDWARE, SHAPING AND ALL WOODS SAWS HAVING TEETH OF AN ANGLES

SAW FILE 12 IN. L. 1/2 IN. W. 1/8 IN. THICK

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**MACHINISTS' FILES**  
FOR USE ON ALL TRADES AND FOR GENERAL WORK UPON IRON AND STEEL

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**Superior MILLED TOOTH FILES AND SPECIAL PURPOSE FILES**

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SPECIAL PURPOSE FILE 12 IN. L. 1/2 IN. W. 1/8 IN. THICK

MILLED TOOTH FILE 12 IN. L. 1/2 IN. W. 1/8 IN. THICK

SPECIAL PURPOSE FILE 12 IN. L. 1/2 IN. W. 1/8 IN. THICK

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**NICHOLSON**  
**SWISS PATTERN FILES**  
PRECISION FILING

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## NICHOLSON HELPS YOU SELECT-A-FILE WITH THIS FREE WALL CHART

Here's a concise summary with suggested uses of the most popular Nicholson files. It shows cuts, sizes, shapes of Saw files, Machinists' files, Superior Milled Tooth files, Special Purpose files and X. F. Swiss Pattern files.

The chart's designed to help you and your employees select the right file for the job. Convenient for ordering

files, too. Available free from Nicholson File Company. Just clip and fill out the coupon below.

**Industrial Distributors provide the finest goods and services in the least possible time. Our products are sold exclusively through them.**


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NICHOLSON FILE COMPANY, PROVIDENCE 1, RHODE ISLAND

FILES • ROTARY BURS • HACKSAW AND BAND SAW BLADES

GROUND FLAT STOCK • INDUSTRIAL HAMMERS

**NICHOLSON FILE COMPANY, Dept. P.R., Providence 1, R. I.**  
 Gentlemen: Please send me a free select-a-file wall chart.

Name

Firm

Street Address

City  Zone  State

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## RIEGELEASE™

easy peeling papers  
for  
stickiest adhesives



That slick paper you peel from pressure-sensitive labels, tapes, and other "peel and stick" products is a most unusual paper. Choosing a paper that'll keep the stick sticky and still peel easily requires careful study. Both the adhesive and the paper have technical and chemical variables, and processors using high cost materials can't afford to take chances with unproved release paper.

For over 15 years, users of pressure sensitive adhesives have found the best answers at Riegel. We have many releasing papers... not only for adhesives, but also for casting films and foams, container liners, and various interleaving jobs... typical of our 600 papers now serving industry in *products*, in *production*, in *packaging*.

The most universal releasing papers are named "Riegelease." Our technical data folder is your best place to start. Write for it today.

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Please send samples and data on  
RIEGELEASE to:

Mr. \_\_\_\_\_

Co. \_\_\_\_\_

Address \_\_\_\_\_

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## FOB—"filosofy of buying"

FROM OUT OF the West, comes a rather rough-hewn but none the less sincere tribute to purchasing—the man and the function. It was composed by Roy Hegg, assistant city engineer of Billings, Montana, and forwarded by Frank G. Connelly, purchasing agent:

### Want Something?

The Purchasing Department, with a staff of two  
Do all the buying for me and for you  
Frank says O. K., Ruth does the typing  
Get clearance first, or no use your griping.

Nuts and bolts, or a bail of hay  
Must have Mr. Connelly's O. K.  
If you don't believe it, order without—  
The Purchase Order is never sent out.

Sign the original, where's the orange copy  
Who signed for this—sure looks sloppy,  
They have got to be paid, get them back in  
O. K. this time, don't try it again.

2% discount? We buy quite a

few—  
If that's all we get, we'll stop buying from you.  
The way they stab us, sure is a pity  
All trying to get even, because it's the City.

Something you want?  
And desire it fondly?  
Don't mess around—  
Go and see Mr. Connelly.

THE NOT SO GOOD old days of purchasing rouse no nostalgia in most of us. But we thought you might be amused by the following passage from Charles W. Morton's reminiscences of *The Boston Evening Transcript*, which appeared in *The Atlantic Monthly*:

"The *Transcript's* purchasing agent—although we are inclined to think the title was self-bestowed, since no one would have entrusted this individual with such weighty responsibilities as the procurement of newsprint and ink—was a specialist in obtaining trade discounts for the staff, invariably on merchandise in which we had no conceivable interest. A notice that we could buy baseball equipment from Iver John-



"Yes, you've already sold the boys in the shop on it—You've sold the supervisors on it—unfortunately that brings us to me!"

son's for the next thirty days at a 10% reduction might appear on the city room bulletin board, and the purchasing agent, pencil in hand would come among us inviting orders. His must have been a frustrating life, for nobody ever seemed to need a first baseman's mitt or a pair of shin guards. We'd make the old ones do for another season, we told him. Even more disappointing was the office reaction to his hopeful inquiries about minor supplies such as pencils or copy paper. Etiquette called for morose, even critical responses, and a typical conversation with him was eagerly attended by all within earshot:

'How do you like that new pencil?'

'What new pencil?'

'Why. the new Eagle Mirado No. 174 that you are using.'

'I hadn't noticed it.'

'Well, don't you think it's better than Eberhard Faber's No. 482?'

'No.'

'You don't?'

'I should say not.'

'Oh.'

"The purchasing agent did come into his own each year just before Easter. Through some deal with a wholesale florist, he offered a small discount on lilies, and it was not unusual for a hundred or more orders to come in to him from various departments of the *Transcript*. The pots of lilies were ranged over the floor of the city room to be picked up by their owners, all under the vigilant supervision of the purchasing agent. The lilies engulfed the room, and the story ran that one year the traffic was so heavy and the congestion so demanding that the purchasing agent simply keeled over in a faint, right in the midst of his blossoms."

**S**UIT THE ACTION to the word, we always say, and these people whose names we culled from recent correspondence most certainly do:

Mr. Clayton Rumble, an explosives operator for the Hercules Powder Company;

Mr. Frank Irons, sheriff of a small town in Michigan.

# WIRE CLOTH



**for**  
**FILTERING**  
**SIZING**  
**STRAINING**  
**TESTING**

In all metals, in all weaves  
... woven to the highest accuracy  
standard in the industry. You just can't  
buy a better wire cloth than "NEWARK."  
Hundreds of meshes, weaves and metals to fit your  
specific need. Years of processing experience to  
help you pick the right wire cloth for your  
application. Write for Bulletin FC or write us about  
your problem. Fast deliveries, best cloth,  
lowest cost when you call on NEWARK.

**NEWARK**  
for **ACCURACY**

**Newark**  
**Wire Cloth**  
**COMPANY**

351 VERONA AVENUE • NEWARK 4, N. J.  
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# THE AMPLEXOLOGIST



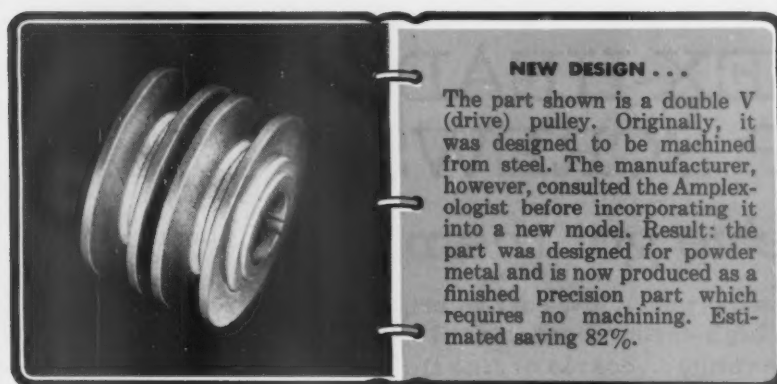


# ... IS ADMITTED TO MANY SECRETS!

Many manufacturers have found it pays *not* to guard some secrets too closely. Especially from the Amplexologist. True, manufacturers are usually reluctant—the first time—to show the Amplexologist new model plans and prototypes *before* the design is final. But only the first time.

Why? Well, first of all the Amplexologist is no blabbermouth. He looks but doesn't talk. And what he sees can help cut costs. For example: *how to make this part, this part, this one and maybe this one, too, through advanced powder metallurgy—and save thousands of dollars in machining costs. Often improve the product at the same time.*

Well, secrets are fun but money is more so. That's why hundreds of manufacturers—in order to take full advantage of powder metallurgy before production begins—happily share their secrets with the Amplexologist. Their confidence has helped make us the world's largest and most experienced producer of powder metal parts. Another reason why leading manufacturers say: **When it comes to powder metallurgy—Amplex has the answer.**

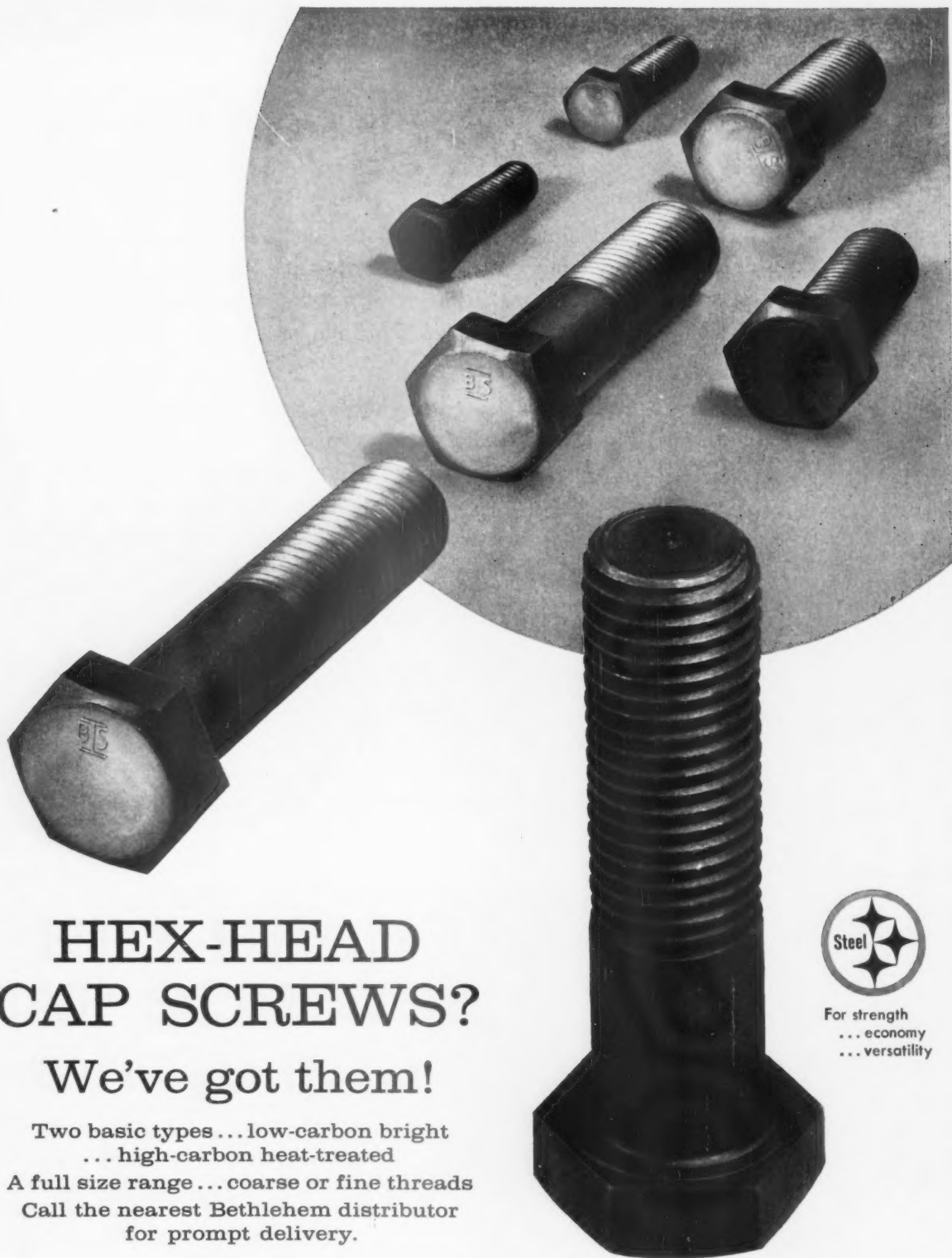


## AMPLEX

DIVISION CHRYSLER CORP.  
DETROIT 31, MICHIGAN



For More Facts Write No. 195 on Information Card—Page 32



## HEX-HEAD CAP SCREWS?

**We've got them!**

Two basic types... low-carbon bright  
... high-carbon heat-treated

A full size range... coarse or fine threads

Call the nearest Bethlehem distributor  
for prompt delivery.



For strength  
... economy  
... versatility



BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.  
*Export Distributor: Bethlehem Steel Export Corporation*

# **BETHLEHEM STEEL**

# *Now!* The LUNKENHEIMER BALL VALVE



**Fig. 700-T**

1/4" to 2", Screw Ends,  
Bronze Body, Teflon  
Seats and Seals.

**Fig. 700-B**

1/4" to 2", Screw Ends,  
Bronze Body, Buna-N  
Seats and Seals.

**AVAILABLE SOON  
in OTHER MATERIALS**

## New Top - Entry Design



Engineered with traditional Lunkenheim  
quality . . . self-aligning ball seals against both  
seats . . . long-lasting resilient seats for tight  
shut-off . . . straight-through flow . . . quarter-  
turn operation . . . top entry for easy maintenance

*Order from your Distributor*

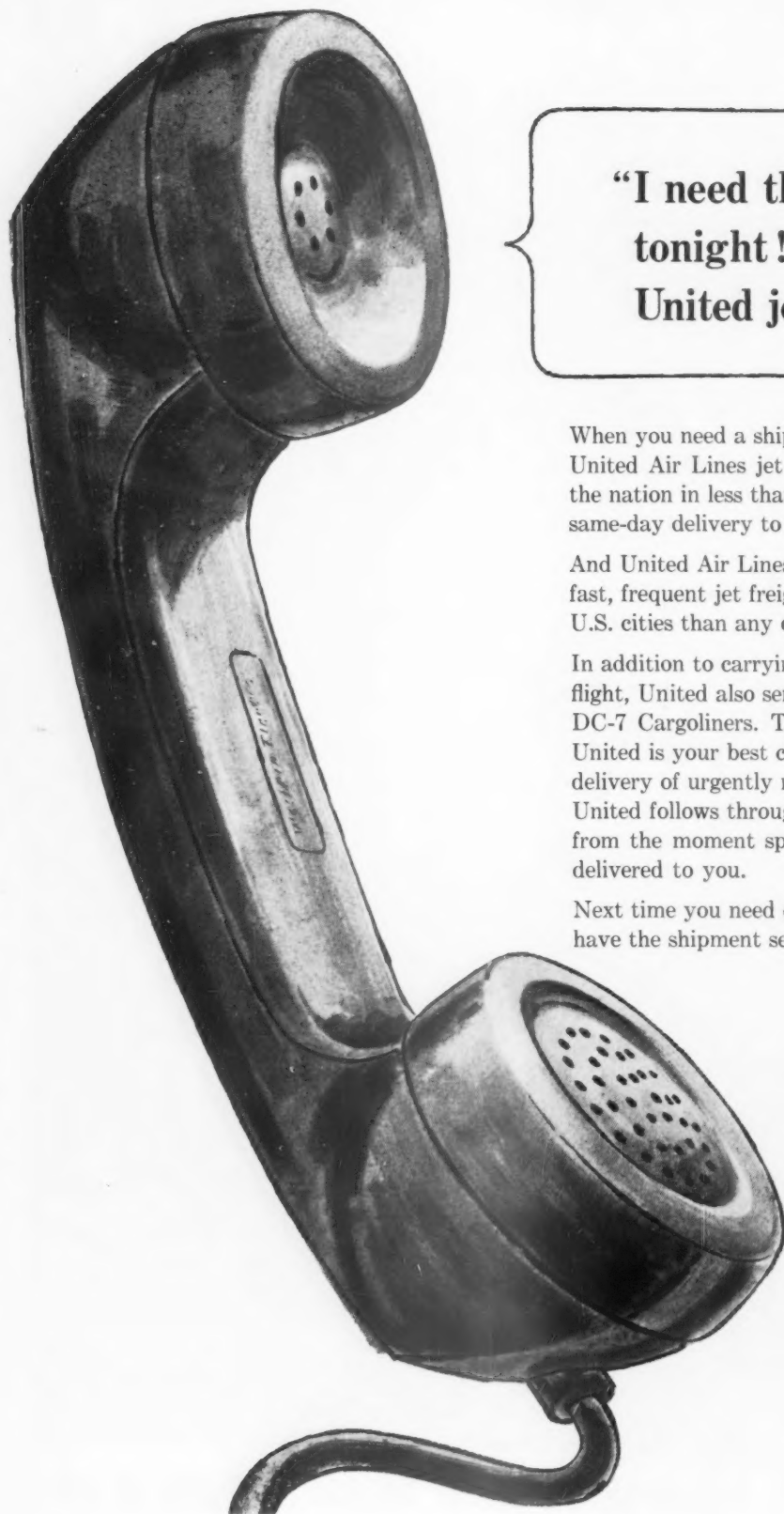
or write The Lunkenheim Company, Cincinnati 14, Ohio



**LUNKENHEIMER®**  
THE ONE *Great* NAME IN VALVES

• BRONZE • IRON • STEEL • PVC

L-960-3



**"I need that shipment  
tonight! Send it  
United jet freight."**

When you need a shipment in a hurry . . . specify United Air Lines jet freight. United jets can span the nation in less than five hours . . . providing same-day delivery to Main Line cities coast to coast.

And United Air Lines' growing jet fleet gives fast, frequent jet freight service to and from more U.S. cities than any other airline.

In addition to carrying freight on every passenger flight, United also serves you with a fleet of fast DC-7 Cargoliners. This total airlift is one reason United is your best choice for fast, dependable delivery of urgently needed shipments. Another: United follows through with your shipment from the moment space is reserved until it's delivered to you.

Next time you need delivery in a hurry . . . have the shipment sent United air freight.



For More Facts Write No. 198 on Information Card—Page 32



# Calendar of Coming Events

**Feb. 27-Mar. 3.** National Association of Educational Buyers: 13th Purchasing Institute, Charterhouse Motor Hotel, Alexandria, Va.

**Mar. 5-8.** Lighting, Lamps & Electrical Manufacturers' Salesman's Assn.: National Lighting Exposition, Coliseum, New York, N. Y.

**March 6-8.** American Management Association: Data Processing Conference, Statler Hilton Hotel, New York, N. Y.

**Mar. 11-14.** Steel Founders' Society of America: Annual Meeting, Drake Hotel, Chicago, Ill.

**Mar. 11-15.** National Association of Secondary Material Industries: Annual Convention, Fairmont and Mark Hopkins, San Francisco, Calif.

**Mar. 13-14.** Steel Founders' Society of America: 59th Annual Meeting, Drake Hotel, Chicago, Ill.

**Mar. 20-24.** American Society for Metals: Western Metal Exposition and Congress, Pan-Pacific Auditorium, Los Angeles, Calif.

**April 7-8.** District One, National Association of Purchasing Agents: Victoria, British Columbia, Canada.

**April 17-21.** Office Equipment Manufacturers Exhibits: Coliseum, New York, N. Y.

**May 3-5.** National Association of Educational Buyers: 40th Annual Convention, Chase Park Plaza Hotel, St. Louis, Mo.

**May 7-11.** National Office Management Association: Sheraton Jefferson Hotel, St. Louis, Mo.

**May 24-25.** American Iron and Steel Institute: Annual Meeting, Waldorf-Astoria Hotel, New York, N. Y.

**May 24-26.** Electronic Industries Association: 37th Annual Convention, Pick-Congress, Chicago, Ill.

**May 25-26.** National Society of Business Budgeting: Statler Hilton Hotel, Dallas, Tex.

**May 29-30.** Canadian Purchasing Agents Association: 36th Purchasing Conference and Products Display, Royal York Hotel, Toronto, Canada.

**June 4-7.** National Association of Purchasing Agents: Annual Convention, Conrad Hilton Hotel, Chicago, Ill.

**June 5-9.** Society of the Plastics Industry: 9th National Plastics Exposition, Coliseum and Commodore Hotel, New York, N.Y.

**June 14-17.** Drop Forging Association: Annual meeting, Greenbrier, White Sulphur Springs, W. Va.

**SUBSCRIPTION CORRESPONDENCE AND CHANGE OF ADDRESS:** Write to Circulation Department, PURCHASING Magazine, 205 East 42nd Street, New York 17, N. Y. Please give title and company affiliation in all correspondence. Notify us promptly of any change of address. Be sure to give old as well as new address; include postal zone number, and new company name and title. Enclose address label from a recent issue, if possible. Since mailing labels are addressed in advance, please allow 5 weeks for change to become effective.

FEBRUARY 27, 1961

THE 52100 HOUSE

INDUCTION • CONSUMABLE • LEADED

**PETERSON  
STEELS, INC.**

Union, N. J. • Wethersfield, Conn.  
Detroit, Mich. • Melrose Park, Ill.

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Another Tinnerman Original...

## Self-retaining "U" and "J" SPEED NUTS® cut assembly costs up to 50% or more!

If you are worried about rising assembly costs, let one-piece "U" and "J" SPEED NUTS keep costs down... and improve your product.

They can't fall off, once they've been pressed into screw-receiving position. No welding, staking or other secondary fastening devices needed. You eliminate lock washers—spring steel SPEED NUTS are self-locking, make vibration-proof attachments.

SPEED NUTS are ideal for blind assembly or hard-to-reach locations. Apply them *before* you paint panels without danger of paint-clogging. Or *after* porcelainizing, without damage to finishes. The "U" type is similar to the "J" type, shown above, but is used where full bearing surface on the lower leg is required.

A free Fastening Analysis can tell where SPEED NUT brand fasteners belong on your

products. Call your Tinnerman representative—he's listed in most major telephone directories. Or write to:

**TINNERMAN PRODUCTS, INC.**  
Dept. 12 • P. O. Box 6688 • Cleveland 1, Ohio

**TINNERMAN**

*Speed Nuts®*



FASTEST THING IN FASTENINGS®

CANADA: Dominion Fasteners Ltd., Hamilton, Ontario. GREAT BRITAIN: Simmonds Aerocessories Ltd., Treforest, Wales. FRANCE: Simmonds S.A., 3 rue Salomon de Rothschild, Surasnes (Seine). GERMANY: Mecano-Bundy GmbH, Heidelberg.

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### NOW HEAR THIS, SUPPLIERS!—George Duke of Westinghouse Atomic Power

Department put an eye-catcher on a form letter recently sent to all suppliers. It was a bright red sticker, carrying the words "Immediate Attention" in capital letters. The letter discussed some of the points covered in a recent PURCHASING Magazine article ("Follow-Up Is the Supplier's Job"). The device is a simple but effective way to get someone to read a communication he might otherwise pass by.

### LOCATE PLANT FOR SUPPLIERS—Redmond Company, Owosso, Mich. has a helpful

idea to speed deliveries: a map showing the location of Owosso in relation to larger nearby cities is printed on purchase orders and requests for quotation. P.A. Glenn Baumhardt figures the map helps suppliers figure freight charges and delivery times more easily, and get the material there more promptly once they get the order.

### PUBLICIZE YOUR PLANS AND PROBLEMS—Planning a new inventory control

program? Installing new equipment that will change your paper-work flow? Working out a new scheduling system with production control? These and similar changes will affect suppliers and their performance in many ways. Don't keep your plans a secret if there's really no need to. Use form letters or "news bulletins" to tell your suppliers about what you're doing and why. And don't be afraid to ask them for ideas and suggestions.

### IMPROVE THAT CATALOG FILE—A central catalog file for the purchasing

department is a good thing, but it can be made better. Cross index each catalog in a commodity card file. Then the buyer doesn't have to try to keep names of all vendors of a given product in his head. He simply checks the card in the commodity file for a list of suppliers of that item and refers to their catalogs.

### HINT FOR MANUAL MAKERS—The ideal way to develop a purchasing manual would

be to take the best man in your department, put him at the job full time, and give him a quiet place in which to work. Probably not one P.A. in a million can do this, though. Here's an alternative some companies have found successful: ask a recently retired member of the department (or even a retired P.A. of another company) to handle the job. He's probably got a good store of purchasing knowledge, plenty of time on his hands, and can work free of the interruptions that beset someone trying to do two jobs at once.

# What Price Difference?

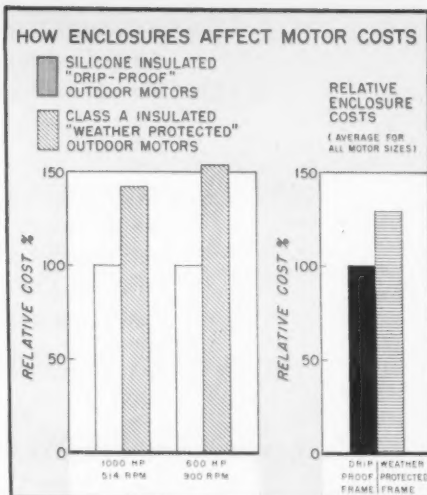


## There's No Price Premium . . . Just Savings . . . When You Specify Silicone Insulation

**For Outdoor Locations:** You can save 30% and more on initial cost of form-wound motors by specifying silicone insulation systems made with Silastic, the Dow Corning silicone rubber. Here's why: 1) Silicone insulated motors are now available at no price premium; 2) The insulation system itself is self-protecting, shrugs off weather, humidity, corrosion, dust, even flooding. There's no need for elaborate enclosures that push motor prices up and up. The chart (right) shows how much you save by specifying silicone insulated open motors.

**For Indoor Locations:** Where ambient temperatures are high, where corrosive fumes or industrial contaminants are present; where relative humidity is pushing 100%; where motors are hosed down — in all these applications and others, too, expensive motor enclosures, and often expensive ducting as well, can be eliminated by specifying silicone insulation.

**For Any Location:** Silicone insulation systems increase motor service factor by as much as 15 to 30% because of their greater thermal stability. This increased service factor means there's no need to overmotor for occasional overloads . . . and suffer the power factor penalty of part loaded induction motors.



This chart shows one of the ways you save by specifying motors insulated with Silastic.

New brochure on Silicone Insulation.  
Write for your free copy.

Address Dept. 7414.



**Dow Corning CORPORATION**  
MIDLAND, MICHIGAN

ATLANTA BOSTON CHICAGO CLEVELAND DALLAS LOS ANGELES NEW YORK WASHINGTON, D. C.

For More Facts Write No. 201 on Information Card—Page 32





## Purchasing And Price-Fixing

PURCHASING MAGAZINE

FEBRUARY 27, 1961

**P**URCHASING AGENTS with respect for themselves and their function bitterly resent price rigging, since it makes a mockery of the principles on which they are supposed to operate.

That is why few purchasing people will disagree with Judge Ganey's comment before he handed out sentences in the electrical industry antitrust case: "What is really at stake here is the survival of the kind of economy under which America has grown to greatness, the free enterprise system."

That is why they will be heartened by the statement of the largest defendant company that its policy is to comply strictly with the antitrust laws, with no exception, compromise or qualification. "It is in the best interests of our free competitive economy," the statement reads, "that the antitrust laws be aggressively enforced."

But after these generalities have been agreed on, we are still faced with some troublesome questions about purchasing's role, not only in this case, but in the whole competitive arena. And it is important for everyone in industry that they get a thorough airing.

One is whether aggressive purchasing is "forcing" manufacturers into price rigging to protect their declining profit margins. Public utility executives were reported to have received a letter recently from an indignant supplier accusing buyers of stupidity, sharp practice, and playing one supplier against another. (How "stupidity" and "sharpness" in one person were reconciled was not made clear.)

Conversely it can be asked whether mute acceptance of price-fixing and bid-rigging (which of course is not limited to one industry) doesn't indicate that purchasing is a nonentity in some companies. Where top management allocates business to suppliers without regard to sound buying principles purchasing can be considered little more than clerk-work.

There are no universal, black-and-white answers to these questions. It would be naive to deny that overly rough purchasing can—and in some cases has—driven suppliers to the wall. One would be equally artless to say that purchasing must operate by its own rules, outside the scope of management's wishes and objectives. Exceptions must always be made for special cases.

Yet in the long run, if artificial restraints on sound purchasing tactics and basic purchasing prerogatives become the rule, business will suffer badly. We've said it here almost to the point of monotony, yet it seems to take on more, not less significance in the light of developments like the antitrust case: strong, intelligent, and ethical purchasing is one of the most powerful safeguards of our competitive free enterprise system.

*Paul V. Farrell*

## To the Reader . . .

THE COMPUTER has been called many things. Some look on it as the herald of a new industrial revolution. Others consider it a soulless, job-destroying monster. But regardless of how you look on it, there are two facts about the computer that admit of no argument: (1) it is here to stay; (2) the tremendous impact it has already had on business is only a shadow of what's to come.

Purchasing agents are keenly aware of the significance of electronic data processing. They know that automated handling of the enormous amount of information purchasing must deal with is the solution to many of their problems. EDP sessions always draw big crowds at meetings and conventions of the National Association of Purchasing Agents. Even those whose companies are not in a position to use computers know they must stay abreast of developments in the field. All of us sooner or later are going to be directly affected by electronic data processing.

The comprehensive article that follows is an up-to-the-minute report on the effect of the computer on purchasing. It tells what the machine can do to speed purchasing procedures, prepare reports, and measure performance of buyers and vendors. It is a glimpse into the not-so-distant future for those purchasing departments that are not yet automated. It is a working guide for the departments that are now having computer time made available to them. It describes what the purchasing executives of the firm whose name has become a synonym for electronic data processing—IBM—have done with their own product and what they expect to do in the future.

The article is intended to do more than give you the mechanical facts about purchasing and the computer. It is meant to allay any fears about the machine on middle management jobs, to emphasize the fact that human intelligence is still the most important factor in business. It brings home the fact that farsighted planning and sound organization are necessary to make the most efficient use of the computer.

If there isn't a computer in your life now, there will be. Here is a chance to stand back and examine the problems and opportunities presented by one of the most important developments in business history.



# Tomorrow's Purchasing—Today

By John Van de Water,  
Technical Editor

**T**HE purchasing department of tomorrow is already at work. At the Endicott, N. Y., plant of IBM's general products division, a RAMAC 650 computer spends 66 hours a week, more than half its operating time, working for purchasing.

For over 12 hours a day this electronic giant produces requisitions, writes purchase orders, expedites, audits invoices, and prepares payment vouchers and checks. Yet it is much more than just an expensive paper shuffler. It can produce, on demand, up-to-the-moment operating reports—of open orders, commitments, or expenditures. When programed for IBM's new measurement indexes it can analyze price trends and quality and delivery performance with accuracy and detail impossible in any manual system.

The big thing about the RAMAC 650 system is that it

was conceived by purchasing for purchasing. It exists today because purchasing people felt the need for an integrated data system that would get work done more quickly and more accurately. Spending \$50 million per year, and processing over 6000 purchase orders each month, involves a great quantity of material that cannot be assembled and stored manually with any success. Naturally, IBM purchasing people thought in terms of data processing equipment.

## Cut Out Detail

"We have always looked for ways to improve purchasing—to get the detail out of it," explains Procurement Manager Denton H. Covert, who heads Endicott purchasing. "We especially want to get the clerical load off the buyer's shoulders. We needed faster buying and more rapid completion of paperwork so we turned

to the computer."

Robert D. Venner, administrative purchasing manager at Endicott, and his staff worked out preliminary ideas which he then took to IBM's systems department. "These are our machine experts," Venner explains. "With them and with several accounting people we formed a committee to study equipment and what it could do. When we decided on the RAMAC 650 as the heart of the system, we made our proposal to management. We had to prove economy—that a computer would save us money. We are not using it just because we are IBM. We are convinced it is worth every cent."

The computer obviously saves an incredible amount of time; it can write 300 purchase orders per hour. Furthermore, the system can handle wide fluctuations in daily work. This means that purchasing doesn't have to maintain



**Left:** Procurement Manager Denton H. Covert heads purchasing at IBM Endicott. He is enthusiastic about the RAMAC 650 system because it gives him an unusually clear picture of what the department is doing. **Center:** Administrative Purchasing Manager Robert D. Venner had to sell top management on the value of data processing in purchasing. "It is a continuous challenge," he says. "You can always do so much more with data processing than you are doing." **Right:** Endicott Plant Manager Frank G. Paul is behind the new program all the way. He comments: "I believe it will be a great benefit to the Endicott plant."

Buyers are more important than ever. IBM's RAMAC 650 not only frees them from routine tasks but identifies specific areas where purchasing performance is deficient. Of 87 people in purchasing, 34 are buyers.

D. H. Covert  
Procurement Manager

H. J. Ballus  
Secretary



J. A. Coles  
Purchasing Manager  
Contract Purchasing  
Dept. 431

E. Mathewson  
Secretary

R. J. Hemmerson  
Purchasing Manager  
Purchase Analysis  
Dept. 432

R. E. Hynes  
Purchasing Manager  
Corporate Purchasing  
Dept. 434

W. A. Kipp  
Purchasing Manager  
General Purchasing  
Dept. 436

B. A. Scudder  
Secretary

M. A. Morgan  
Purchasing Manager  
Tools, Equipment and  
Supplies Purchasing  
Dept. 435

E. Webster  
Secretary

R. D. Vender  
Purchasing Manager  
Administrative Services

C. D. Majka  
Manager  
Expediting and Records  
Dept. 437

Financial  
Analysis

G. W. Anderson  
D. L. Berry  
R. Crooks  
V. J. Dekar  
R. K. Ecklund  
C. H. Krissel  
J. E. McDonald  
D. L. Messersmith  
F. W. Searles  
J. P. Skrovaneck \*\*  
C. E. Tallman  
L. G. Vanderlip

E. A. Dewar  
H. W. Geall  
P. S. Keegan  
W. G. Stevens

F. M. Deuel  
L. E. Frye, Jr.  
H. V. Grant  
J. F. Kotsaid  
R. K. Packer  
R. D. Pierson  
J. P. Skrovaneck \*\*

N. R. Aylesworth  
J. A. Caldwell  
R. E. Clark  
E. A. Connolly  
G. E. Holbrook  
M. J. Esough  
A. Malanchuk  
E. F. Mc Cusker  
W. L. Sayre  
A. V. Scott  
J. G. Steele  
J. H. Tharratt  
B. F. Volchick

D. L. Adams  
R. T. Beach  
A. D. Bryant  
L. L. Fischer  
Y. L. Foster  
V. C. Howell  
M. J. McGinnis  
J. F. Olocha  
H. L. Peck  
W. Peterbaugh  
D. W. Raitt  
F. R. Smithke

W. R. Bryan  
J. M. Buckenize  
D. Chapron  
P. J. Deland  
L. Holland  
D. A. Karl  
F. J. Obiasney  
L. E. Porter  
S. L. Roth  
J. M. Sladky  
F. J. Sollitto

A. E. Flukenberg  
B. Kaspryk  
E. J. Lane  
S. A. Mayes  
D. E. Miller  
S. C. Mirra  
J. M. Ribnikar  
M. A. Santorelli  
R. E. Tuttle  
T. A. Zaharchuk

W. C. Herciga  
R. L. Martens  
R. F. O'Malley

\*\* - Combination Buyer and Corporate Purchasing Representative

a clerical staff geared to peak loads.

But the 650 system also reduces clerical work in other departments. It's an integrated system that helps many plant functions. In addition to eliminating manual purchase order typing and routine expediting in purchasing, for example, the system makes it unnecessary for production control to write requisitions. It helps accounts payable by cutting out both hand posting and manual auditing of invoices. It reduces writing receiving reports to a card punching operation.

Once procedures are established, computer speed and capacity become almost incidental. As Systems Manager Raymond E. Keefe says: "We started this system for its quick economic benefits—to save clerical time and labor. Now we find it has many other advantages." The machine can collect and analyze data in a way that is either impossible with manual

procedures or would take so long that the results would be obsolete before they were available.

One very important benefit of the system is that it saves the buyer work and at the same time provides him with unusually complete information. As a result the buyer can make faster, more intelligent decisions than he could with a manual system.

### Covers Buyer's Every Need

The requisition that comes out of the RAMAC 650 doesn't just list material required, quantity and date. It is a complete part history, listing past purchases and prices, economic order quantities, vendors, terms, lead times, and accounting data. Everything the buyer needs to know to make a purchase is on this single sheet. And it takes no clerical effort to get it to him.

The system is sufficiently flexible so that the buyer doesn't have to wait for a requirement to get

this information. He can get it daily for any part. This enables him to find new sources, send out inquiries, or make advance contracts. In this way the buyer can stay ahead of his orders and gain time to search and negotiate.

Similarly, the 650 system provides detailed information to help management make decisions and plan for the future. In a matter of minutes the machine can list the orders open on a specific vendor, or those for parts that go into a particular end-product. A report on the amount of money spent or committed for future deliveries, is immediately available, analyzed by part, vendor, product, or commodity.

But most important to management are the measurement indexes for analyzing price trends and evaluating performance of vendors and buyers. "I get reports each quarter, as well as annually," says Covert. "Graphs and charts show price trends at a



glance and can be used to compare performance in a number of ways. We are measuring ourselves. This helps not only purchasing, but every level of management."

Buyers are equally enthusiastic. They have known about the program since its start. William C. Herciga, a purchasing administrator in Venner's group, has been mainly responsible for keeping them informed. "Once we decided to go ahead," he relates, "we brought in the buyers and explained how the system would help them do a better job. We had six sessions with each group to get their reactions and suggestions. We wanted to be especially sure that we weren't adding any problems. As a result we got excellent cooperation."

The RAMAC 650 hasn't thrown

any buyers out of work—and it probably won't. So far, 13 clerical workers have been reassigned to other tasks but the Endicott purchasing department is still 87 strong. Thirty-four are buyers.

Both Venner and Herciga emphasize that the computer cannot make buying decisions. It is not a "thinking machine", but a master electronic clerk. "A computer does only the work it is told to do," says Herciga, "and it does it accurately only when the information that is put into it is correct."

"We had to stress accuracy," says Venner. "Everything a buyer writes on a requisition has to be accurate. Once it goes into the 650 it stays there until someone changes it. But when you get material information into a system such as this," he continues,

"and the data is correct, you eliminate human error. Posting and recording is done at a fantastic speed, of course, and it's far more accurate than if it were done manually. There are no transcribing errors."

As far as Endicott purchasing is concerned, however, this is just the beginning. "Once you get it started," says Venner, "a system such as this is a challenge. You can always do so much more with it than you are doing. Today's methods will probably be obsolete in five years."

Systems manager Keefe puts it this way: "The system has tremendous potential. Only after we have had experience with it can we decide where to go next. It could be the foundation for a complete production control cycle."



## How Electronic Purchasing Works

*Processing over 4000 documents a day, the RAMAC 650 does everything from writing the requisition to paying the bill. It is also a storehouse of purchasing information.*

IBM's purchasing computer does not decide where to buy or how much to pay. As in any purchasing system, these are the buyer's prerogatives. But the machine does handle a big part of the daily clerical routine in Endicott's purchasing department. The IBM RAMAC 650 performs these basic jobs:

- As a giant file it stores purchase orders, requisitions, and buying information.
- It sorts and processes this data

into forms and reports for use by buyers and purchasing managers.

- It automatically prepares most purchase orders and other paperwork, rapidly and accurately.

But before the computer can do any of this work it must be given a large amount of data on which to act. Before a conventional purchasing system can produce a purchase order, the buyer-clerk-typist team must know a number of facts: vendor's name and address, payment terms,

method of shipping, quantity, material description, price, date wanted, etc. The computer must have these same facts before it can print a purchase order. The machine, however, cannot telephone a vendor for a price, it cannot look up an address in a directory, it cannot, in fact, decide what to buy. The data it needs must either come from its own unique files or must be supplied to it as input.

### Retains Permanent Data

Yet this limitation is one of the computer's greatest advantages. Permanent information such as vendor addresses, commodity codes, parts histories, etc., can be filed in its memory devices. Such data is therefore always automatically accessible and does not have to be fed into the machine each time a purchase order



## A Typical Day in the Life of a Computer

The RAMAC 650 data processing system at IBM's Endicott plant spends more than 12 hours a day, five days a week, doing purchasing work. Its output is prodigious, yet it could handle 30% more work in very little more operating time. The machine writes from 4000 to 5000 purchase orders each month; stores between 25,000 and 35,000 open orders, information on more than 5000 vendors, and over 12,000 part histories.

In an average day the computer processes:

- 175 requisitions
- 220 purchase orders
- 200 expediting letters
- 40 change orders
- 100 to 150 expediting requests from production
- 25 status requests on open orders
- 150 to 200 up-dating cards
- 600 to 800 receiving cards
- 1500 to 2000 invoice cards for audit

—And three times a week the 650 converts over 3000 payment control cards, each representing an invoice, to 500 checks and vouchers.

is written. In a manual system, on the other hand, the buyer has to get this information before he can complete a purchase order.

The RAMAC 650 stores information in two ways: on reels

of magnetic tape, and on magnetic discs in its RAMAC file section. Factual data enters the system from punched cards. Processing instructions come partly from punched cards, partly through

pre-wired control panels and manually set controls. The machine's output includes requisitions, purchase orders, follow-up letters, receiving cards, vouchers, and checks.

### Capacity Is Fantastic

To those who have never worked with a large computer, the machine's capacity will seem incredible. On the opposite page, a box lists the average routine daily load, over 4000 items in all, of the RAMAC 650 at Endicott. And this does not include any of the frequent operating reports the machine is asked to make. In addition it handles non-purchasing work to keep it going 24 hours a day.

Workload on the 650 has already increased 30% since the system was set up a year ago. Purchasing can add another 30% without allotting significantly more time to the operation.

So far, the RAMAC 650 prints only about 60% of the purchase orders sent out by the department. These are for raw materials and production items in perpetual inventory which are identified by part numbers. Orders for MRO supplies are still typed manually. The data from all orders, however, goes into the 650 system so that expediting, invoice auditing, reports, etc., can be handled automatically.

### From A-Z

How does it work? Let us follow the complete purchasing cycle, from gathering information to paying the invoice, and see just how the RAMAC 650 performs each task. Purchasing agents need not concern themselves with technical details such as card punching, card-to-tape conversion, or computer programming. These are jobs for the programmer, who, once he knows what work has to be done, develops the machine's program and the instructions for its operators.

Senior Programmer James J. Mansour is responsible for computer operations and programming in IBM's 650 purchasing system. Here he adjusts settings at the main control panel; tape units are in the background.



## Files Make the Wheels Go 'Round

**T**HE RAMAC 650 computer system uses two kinds of storage units or "files": magnetic tape, and magnetic discs. Tape has one advantage: it can hold unlimited amounts of information, since more reels can always be added as others are filled. It is relatively slow, however, in providing access to this data. The tape must be run rapidly past a scanning head to find the spot where the desired information is recorded. But when grouped data is needed in filing sequence, such as purchase orders or part histories, tape is particularly useful.

One file consists of a stack of 50 magnetic discs spinning constantly at high speed. Information is given on a random access basis; that is, it can be secured from any spot on a disc without search time, a matter of a few milliseconds. Endicott purchasing

uses the RAMAC file as a vendor directory. Other information is on three separate tape files.

The **requisition file** is a tape of requisitions which have not been converted to purchase orders. They are filed in numerical order at the same time a production order is fed into the system and a buying requisition produced. It is a temporary file. The machine erases each requisition as it transfers information to a purchase order. Since the resulting gaps would mean longer tapes and more search time, the tape is periodically consolidated on to another. Requisitions more than 30 days old are analyzed regularly to avoid unusual delays in placing purchase orders.

The **order status file** is a standard open order file, except that it is on tape instead of paper. Orders are recorded in numerical

sequence and the tape contains every item of information that appears on the actual purchase order. The tape yields this information as a typed copy of the purchase order, when instructed by a punched card bearing the order number. Card input of receiving data, invoices, and expediting information keeps each order current. Closed orders remain on the tape for two months so they can be inspected and adjusted when necessary.

## Furnishes Complete Records

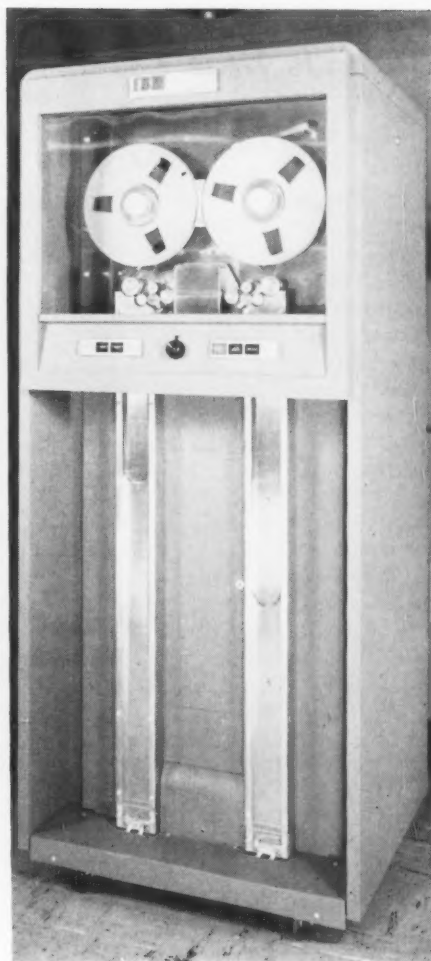
Purchasing uses the order status file for invoice and receiving audits, expediting, and as a basis for operating reports. It can, for example, obtain lists of open orders arranged by vendor, by end-product, or by buyer. Commitment reports can also be obtained from the tape. They show

The image displays four forms used in purchase order processing, stacked on top of each other:

- 850 VENDOR NAME AND ADDRESS UPDATING:** Contains fields for Vendor No., Name or Address, Line No., Total, and Ship Date.
- 850 ROUTING UPDATING:** Contains fields for Vendor No., Via, Line Code, Via Code, F.O.B. Code, Shipping Point, and Destination.
- 850 TERMS UPDATING:** Contains fields for Vendor No., Terms, Line Code, and Term Code.
- 650 DATA CARD:** A detailed form for item specifications, including Purchase Order No., Item No., Code, Quantity, Price, and various checkboxes for options and conditions. It also includes a 'PRICE CHANGES REASON CODES' section.



Vendor names, addresses, terms, routing, etc., are filed on RAMAC magnetic discs.



Tape units such as this contain purchase order, requisition and part history files.

totals of cash committed for a given month and can be broken down in other ways.

The taped **part history file** contains historical information on the more than 12,000 production parts handled by the RAMAC 650 system. With data arranged in part number sequence, the tape takes the place of the common buyers card. It is, however, much more detailed. For each part, the tape lists the last six purchase orders, including order number, vendor, date, price, and quantity purchased. It also lists the code number of the end-product in which the part is used, drawing numbers, and required lead time. EOQ information on the tape

shows quantity breaks, prices, best stock levels, etc.

As the heart of the system, the part history file is the basis of all requisitions and purchase orders. Purchasing keeps it up to date by transferring new data to it from the open order tape, and by alterations and additions via punched cards. The machine will type out on a requisition form, when instructed by an inquiry card, all the information for a particular part.

Endicott's **vendor file** goes on the RAMAC magnetic discs. They hold data on more than 5000 vendors, including names, addresses, vendor codes, terms of payment, etc. A tape vendor file, which

contains payment data, supplements the RAMAC. From this tape the computer prepares expenditure reports, analyzed by end-product, vendor, buyer, or part number.

Together, the RAMAC discs and tape files are the focal point of the 650 system. In each operation the machine uses information from these storage units, whether in writing requisitions or purchase orders, or in making status reports or audits for the accounting department. At the same time, discs and tapes are continuously updated with new information that enters the system, as from order records, price quotations, or receiving reports.



## With Each Requisition—A Complete History

WHEN a buyer gets a requisition through Endicott's RAMAC 650 system he doesn't get just a request to buy. He gets a complete part history. In addition to the usual information—quantity, description, part number, date wanted—the 650 requisition lists the last six purchases and an EOQ analysis comparing unit prices for different order quantities with annual costs.

What triggers the machine is

a buying request from the production control department. This is a punched card known as a production order; it lists the part number, quantity required, and the date the item is needed. Production control is run on an IBM 705 computer which kicks out this card whenever an item hits the order point. Bridging the two systems, the card goes into purchasing's 650 which adds information from the parts history

tape and the RAMAC vendor file, assigns an order number, and types the requisition. Each requisition covers just one item.

As it types the requisition, the computer puts the data on the open requisition tape. The tape not only keeps a record while the buyer is working on the order, but also makes it unnecessary to convert the data to machine language a second time when the purchase order is written.

**IBM INTERNATIONAL BUSINESS MACHINES CORPORATION**  
ENDICOTT, NEW YORK, U.S.A.

DATE 04 05 60 VENDOR NO. 630410 PURCHASE ORDER No. A 159768 830

ABC COMPANY  
750 ENDWELL RD.  
SYRACUSE, N.Y.

SHIP TO ENDICOTT

VIA 01 JONES EXPRESS FOB 1 SH PT FREIGHT ALLOWED 300 LBS & OVER TERMS 25 2% 10 DAYS

ITEM	QUANTITY	UNIT	PART NUMBER	DESCRIPTION	NET UNIT PRICE
01	900	PCS	237457	GEAR	1.315
				PRINT IN YOUR POSSESSION	5.000 SUC

2 101914 1800 GS 1/2 EVERY 030 DAYS STARTING 05 01 60

PRINT OR SPEC. ATTACHED 1234567

OUR INDUSTRY BUYER DATE

IBM REFERENCE ONLY (DETACH BEFORE MAILING)

04030 537 01 00237457 08400210 1730

Computer prints purchase orders at rate of 300 per hour. Data cards punched with buyers' approvals and changes provide instructions.

Order card from production control department starts buying cycle. When card goes into the 650 system, machine prints requisition for item involved. In addition to usual buying instructions, the requisition lists purchasing history and EOQ analysis (bottom) of part.

**IBM 650 PURCHASE REQUISITION**

DATE 04/01/60 PART NUMBER 237457 GEAR 101914 VENDOR 630410 QUANTITY 900 PCS UNIT PRICE 1.315

ABC COMPANY 01 JONES EXPRESS 15H PT 25 2% 10 DAYS 1234567

PRINT IN YOUR POSSESSION

PURCHASING HISTORY

ITEM	QUANTITY	UNIT	PART NUMBER	DESCRIPTION	NET UNIT PRICE
01	900	PCS	237457	GEAR	1.315
02	900	PCS	237457	GEAR	1.315
03	900	PCS	237457	GEAR	1.315
04	900	PCS	237457	GEAR	1.315
05	900	PCS	237457	GEAR	1.315
06	900	PCS	237457	GEAR	1.315

EOQ ANALYSIS

QTY PER ORDER	UNIT PRICE	ANNUAL COST
450	1.315	1.160
900	1.315	1.160
1350	1.315	1.160
1800	1.315	1.160
2250	1.315	1.160
2700	1.315	1.160
3150	1.315	1.160
3600	1.315	1.160
4050	1.315	1.160
4500	1.315	1.160
4950	1.315	1.160
5400	1.315	1.160
5850	1.315	1.160
6300	1.315	1.160
6750	1.315	1.160
7200	1.315	1.160
7650	1.315	1.160
8100	1.315	1.160
8550	1.315	1.160
9000	1.315	1.160

PURCHASE APPROVALS

## How the RAMAC 650 Places an Order

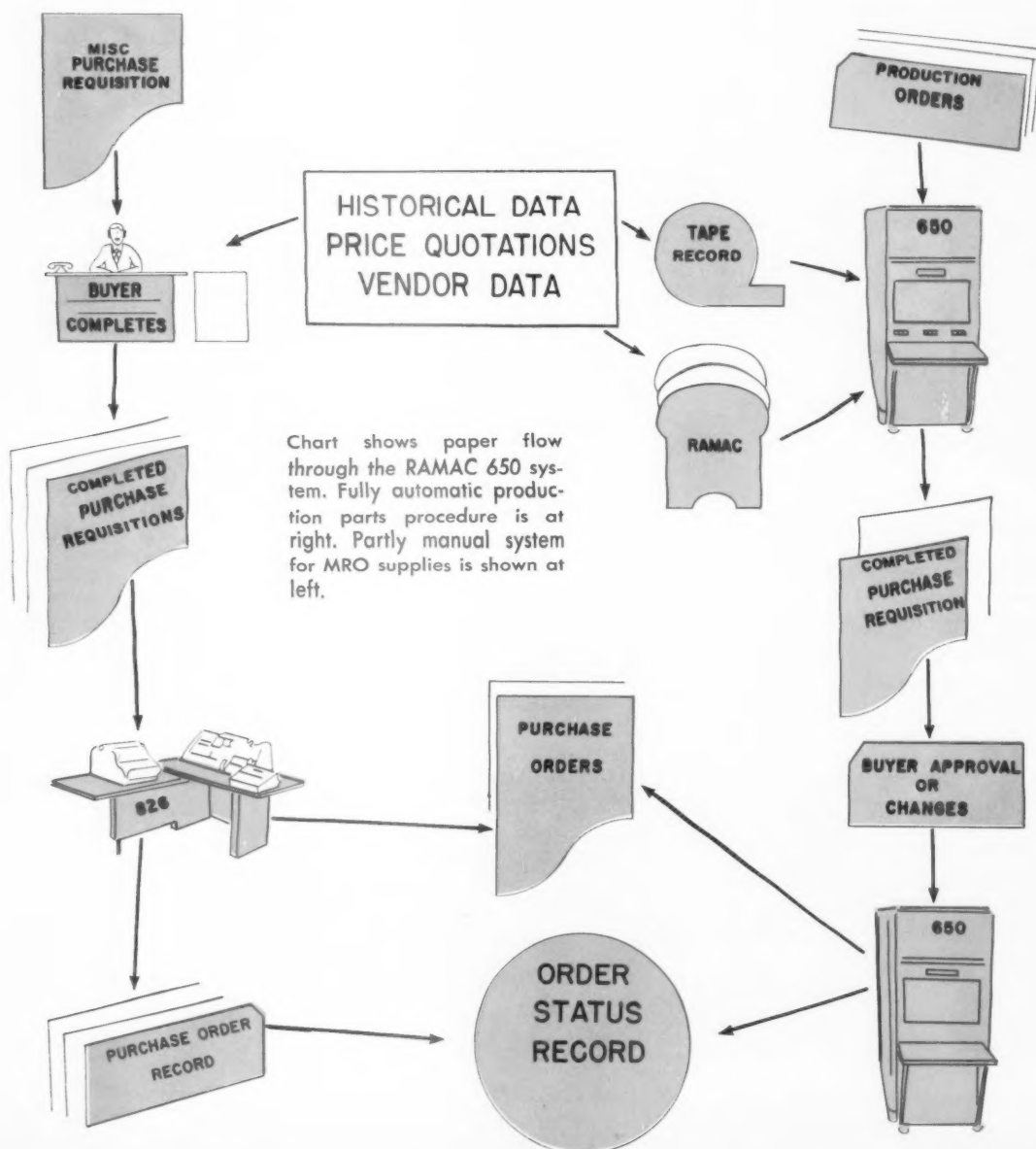
ON receiving the 650 requisition the buyer can do one of two things: he can check the approval box on the form and send it back as is, or he can make any changes on it he believes necessary. In the first instance the new purchase order will be an exact duplicate of the previous one, same vendor, same price, etc. In the second case, the buyer's changes are incorporated in-

to the new order and the tape files corrected.

From the completed requisitions machine operators prepare punched cards that feed the buyer's approvals and changes back into the system. Now the machine types the purchase orders and records the information temporarily in the RAMAC storage unit. On another program the new orders go on the open order

tape, and the part history file is simultaneously up-dated.

Of the more than 6000 purchase orders placed at Endicott each month, about 40% are for MRO supplies and materials. Neither category is covered by production control. Instead, using departments requisition the items on manually prepared forms. After processing, the buyer sends the requisitions to an 826 type-



writer-card punch. The operator manually types the order but at the same time the machine produces a punched card as a purchase order record. This card is fed into the 650 system to record the order on the open order status

tape. In this way the order record is complete, and follow-up, invoice auditing, analysis, etc., can be done on the 650 regardless of the origin of the requisition.

Changes on open orders, such as quantity revisions, engineering

changes, or price corrections, can be made quite easily. The buyer prepares a requisition alteration form from which a card is punched. From the card, the computer writes a change order and updates the order status tape.

Data cards are exact duplicates of the 826 purchase order; three cards cover purchase items, fourth includes reference data, terms, etc. As input, cards add supply orders to status file.

## Follow-up Is Automated, Too

ONCE each working day the RAMAC 650 is programmed for follow up. It then automatically scans the order status tape and produces follow-up letters for all orders due in 15 days. The letter is a simple form which refers the vendor to the order and asks if he will ship on the date requested, or else give the new shipping date. The vendor replies on the same form.

### Choose Your Own Time

Ten days after an order is overdue the system produces an order status card which goes to the expediting section for manual follow-up. There is nothing binding about the ten-day period. The machine could be programmed for any number—three, five, or even thirty days. But for Endi-

cott ten days is a reasonable waiting period. It is, in effect, only three days beyond production's actual requirement date, for in placing the order, purchasing calls for a shipping date one week earlier than necessary. This cushion takes care of common shipping delays.

Of course, no one has to wait until an order is overdue to determine its status. Order status reports are available anytime, and production control does, in fact, request them daily for specific purchase orders or part numbers. The same thing goes for status reports on all open orders with a given vendor or for a specific product line.

To keep close track of important purchases, however, purchasing uses conventional expediting.

Specially assigned expeditors, follow up parts for new products on a day-to-day basis. They even expedite buyers who delay in placing orders for urgent materials. An "X" suffix on the purchase order number instructs the 650 to by-pass such orders and so prevents the confusion of man and machine working at cross purposes.

### Let the Machine Know

To keep the order status file up to date, changes in delivery dates (whether they come as replies to follow-up letters or from expediting efforts) are fed back into the system with data cards. In the same way, receiving reports go into the machine daily. It calculates new balances automatically and closes out completed orders.

## The Ultimate in Receiving and Accounting

THE RAMAC 650 does almost as much for Endicott's receiving and accounting departments as for purchasing. It makes receiving paperwork a card-punching operation and takes most of the clerical routine out of invoice audit and payment.

While the 650 produces a purchase order it simultaneously punches a master receiving card. This contains basic order information: order number, part number, description, quantity, vendor, etc. When the material comes in, receiving punches in the quantity

received and the date. The card goes back to the 650 as an alteration, up-dating the order status file. If a balance remains on the order, the machine produces a new receiving card for that quantity.

The system is tied in with inventory and quality control procedure. The machine issues completed receiving cards as stock receipts and inspection data cards.

The 650 also converts invoices to punched cards. Each day it compares thousands of these

cards with open purchase orders. It audits quantities, prices, extensions, discounts, routing, and transportation terms. Disagreement between card and purchase order means an incorrect invoice. When this occurs the machine kicks the card out for manual follow-up or correction. If the invoice is correct, the computer updates the order status tape and punches a payment control card.

To avoid a lot of unnecessary checking of small errors, Endicott considers an invoice correct if the amount is within \$5 of the purchase order total. Although this difference may seem large, accounting has found that the \$5 allowance costs only \$87 per month in overbilling. The additional clerical effort needed to correct these errors would cost considerably more.

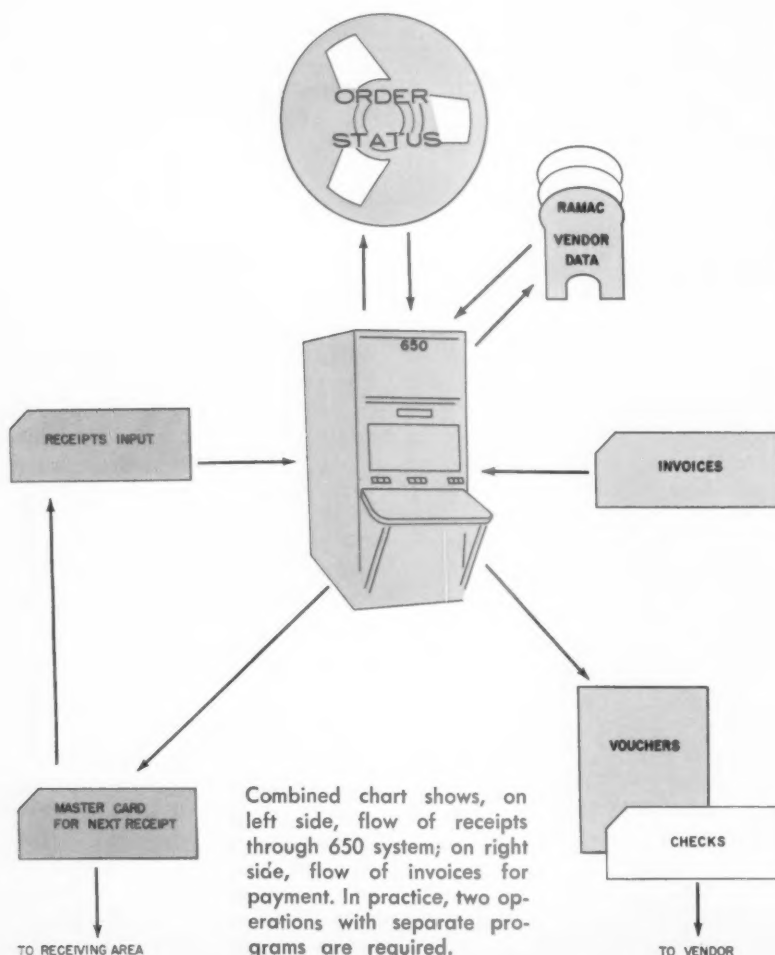
### Complete Expenditure Record

Contrary to conventional systems, IBM's 650 makes invoice payment a completely routine procedure. Three times a week payment control cards, previously punched from vendors invoices and audited, go into the system in vendor code number sequence. The 650 then produces a voucher for each vendor. It lists invoices in detail by date, number, total amount, cash discount deducted, and the net amount. The machine computes and prints the dollar total on the voucher, and at the same time prints a check for this sum. The check is complete with vendor name and address, as well as authorized signature, and needs only to be inserted in a window envelope and mailed.

Automatically, the computer adds the payment figures to the vendor expenditure tape, thus keeping statistics up to the minute.

By-products of the vendor payment procedure provide additional accounting services. Accounting distribution cards, for instance, are prepared from the taped order data while invoices are audited. From these, accounting can prepare its own records.

The expenditure tape, on the other hand, serves to measure past activity by dollar volume.







# How the Computer Measures Performance

The preceding pages describe the routine work the RAMAC 650 does for IBM's Endicott purchasing department. If it did nothing more, its capacity and speed would be impressive. However, since the computer and associated equipment cost \$580,000 to buy, or \$12,800 a month to rent, there's a question as to whether it can really do enough to pay for itself.

Right from the start Purchasing Managers Covert and Venner knew the computer was too expensive to just serve as a highly efficient paper processor. They realized that the payoff on the computer would come from its use as a measuring instrument. Measuring performance of both vendors and buyers, analyzing prices and lead times, projecting costs and requirement trends—these are the ways the 650 really earns its keep. Following is an explanation of the way IBM set up indexes so that the computer could be used as a measuring device.

**P**URCHASING measurement programs often bog down in a mass of figures. But when you reduce the volume of information to manageable levels, on the other hand, you end up with data that no longer reflects true conditions and with results that are undependable.

Using a 650 computer, purchasing at IBM's Endicott, N. Y., plant can calculate and compare purchasing performance on each of the thousands of parts in perpetual inventory. A system of indexes, using the previous year as a base, determines a rating for each part. By combining and averaging these ratings IBM can establish performance levels for an entire product line or for an individual vendor or buyer. At the same time, detailed reports reveal what parts are causing trouble and why.

A year of concentrated effort went into developing this accurate and complete performance

measurement. As soon as purchasing began its study of computer-based purchasing procedures, administrative Purchasing Manager Robert Venner assigned William C. Herciga to setting up the measurements program. Systems analyst Joel Zelnick helped with the statistical procedures.

Before they could set up the management control program, Endicott's purchasing people had to determine just what they wanted to measure. They picked out the specific factors that (1) could be measured accurately, and (2) would give a realistic view of purchasing activity—price, quality, and delivery.

Each is commonly described in numerical terms, and together they make up the real goal of purchasing effort. How each index is derived mathematically is shown on the next page. Essentially, the price index is a comparison of a part's current price with its price during the base

period; the quality index is derived from quality control ratings for the current and base periods; and the delivery index compares the number of days late in each period.

IBM doesn't, of course, have to calculate indexes for each of the 12,000 parts in inventory in order to maintain control—even though the RAMAC 650 easily could. A reasonably accurate control of expenditures requires data for fewer than 4000 parts. Herciga explains the way it works out: "All the production parts in our perpetual inventory add up to 95% of our expenditures. About a third of these account for 85% of parts costs. That means we have our finger on 80% of our expenditures by controlling about 4000 parts."

Once the three indexes have been calculated, they can be averaged into a total index for each group or analyzed individually as is generally done. Because price, quality, and delivery are not always of equal importance, an accurate total index must give different weight to each. At Endicott, price is given a weight of 50%, quality 30%, and delivery 20%. "These are not guesses," says Herciga. "We consulted management, production, quality control, and purchasing people. The weights used are based on their recommendations."

## Speedy Check on Problems

With a total index for each part, it's possible to spot the buyer's biggest problems. Out-of-line conditions show up immediately. An index of 100 means there has been no change from the previous year. Anything under 100 is an improvement, but indexes of more than 100 imply some sort of de-

## How IBM Works Out Performance Indexes

At IBM Endicott about 4000 parts represent 85% of purchasing expenditures for production inventory. To measure purchasing performance the 650 computer calculates three indexes—price, quality, and delivery—for each of these parts. As a base, previous year activity is assigned a value of 100. Indexes under 100 signify improvement—lower price, fewer rejections for quality, or better on-time delivery. Indexes of more than 100, however, mean poorer performance.

### Price Index

The 650 system retains price and quantity information for the base period and current period for each part. The index is derived by the formula

$$\text{Index} = \sqrt{\frac{\sum P_n Q_o}{\sum P_o Q_o} \times \frac{\sum P_n Q_n}{\sum P_o Q_n}}$$

In the formula  $P_n$  is the new price, and  $P_o$  the old, or base period, price. Similarly  $Q_n$  is the new quantity, and  $Q_o$  the old, or base period, quantity. The formula produces a geometric mean of all possible combinations of old and new prices and quantities. It recognizes the effect of quantity on price and at the same time avoids placing undue stress on either factor. The summation sign  $\Sigma$  comes into use in calculating composite indexes for more than one part number.

As an example, the index for a vendor supplying three different parts may be calculated this way: First the sum of the base prices multiplied by the base quantities is computed.

Part number	$P_o$	$Q_o$	$P_o \times Q_o$
123456	\$ .50	3000	\$1500
456789	\$1.00	1000	\$1000
654321	\$1.00	1000	\$1000
$\Sigma P_o Q_o$			\$3500

The sums of the other products are computed the same way. Assuming that they come out as \$4000, \$2500, and \$3000, substituting in the index formula results in:

$$\text{Index} = \sqrt{\frac{4000}{3500} \times \frac{3000}{2500}} \times 100$$

$$\text{Index} = \frac{6.92}{5.91} = 1.17 \times 100 = 117$$

terioration: a rise in price perhaps, or a decline in quality or delivery performance. A quality index of 150, for instance, means that twice as many shipments were rejected in the current period as during the base year.

By listing parts in order of their indexes, therefore, the buyer can readily see which need

prompt attention. When the detailed reports come out of the computer, part numbers are, in fact, listed in index groups. Those with indexes under 100 are not itemized. The others, however, are classified in groups of 101-105, 106-110, 111-115, etc. The buyer gives his attention first to the worst items, those parts with in-

### Quality Index

Quality performance is simply the ratio of accepted deliveries to total deliveries. Comparing the current rating to the base period rating produces the index. If for the three parts used as examples there were 20 deliveries during the period and 19 were accepted, the quality rating is 19/20 or .95. If the quality rating for the base period were .90, the index is computed as:

$$\frac{\text{New rating}}{\text{Old rating}} \times 100 = \frac{.90}{.95} \times 100 = 94.7$$

### Delivery Index

In calculating the delivery performance index, the number of days late in the base period is compared with the number of days late in the current period. For the vendor delivering the three parts in question it is calculated as follows:

Part number	Days late	
	Base period	Current period
123456	3	2
456789	7	5
654321	2	4
Total	12	11
Average	4	3.66

$$\text{Index} = \frac{\text{Current average number of days late}}{\text{Base period average number of days late}}$$

$$= \frac{3.66}{4} \times 100 = 91.5$$

### Total Index

The total index is the combined price, quality and delivery indexes in a weighted average. Here it is for the sample vendor.

	Index	Weight	Total
Price	117.1	.50	58.6
Quality	94.7	.30	28.4
Delivery	91.5	.20	18.3
Total Index			105.3

The total index shows that although quality and delivery performance improved, price increases were sufficiently large to undo their advantage. The vendor's overall performance declined by 5.3% compared to the base period.

dexes over 150, then works up the list to improve performance on the rest of the deficient items.

Sometimes, of course, the buyer cannot control all the undesirable changes. This is particularly true when price increases result from higher labor costs, changed engineering specifications, or higher quality requirements.

## How RAMAC 650 Rates Buyers

	Total Committed Dollars	Quality Index	Delivery Index	Cost Index	Total Index	Total Base Dollars	Dollar Variance
Buyer A	1,800,000	98	95	102	99	6,500,000	130,000
Buyer B	2,100,000	93	105	106	96	7,100,000	426,000
Buyer C	1,200,000	101	98	99	99	4,200,000	-42,000

RAMAC's quarterly summary report by buyer looks like this. Total index shows slight improvement although two buyers were hit with price increases. Dollar variance is projection of price

index based on previous year's purchases, listed here in the total base dollars column. Similar reports are made by 650 system broken down by vendors, commodities, and end-products.

To get a clear picture of what is happening, purchasing has developed a set of reason codes. Numbered from one to ten, they cover such items as labor, material, engineering, quantity changes, etc. Each time a buyer makes out an alteration card for a price change he inserts the appropriate reason code, which is also stored by the 650 system.

### Reasons for Price Rise

Purchasing can use the reason code to analyze price changes for groups of parts—by commodity or end-product, for example. Take the case where the production costs of a computer built at Endicott are rising. A report of purchased parts run off on the 650 will show whether the cost increase is due to increases in parts prices. If so, the reason code will point out why: possibly engineering changes, reduction in quantities, or general vendor price increases. Whatever the answer, the report provides a basis for action.

Instead of detailed reports, designed to allow the buyer to correct out-of-line conditions item by item, purchasing management receives quarterly summary reports which provide an overall view of purchasing performance. Basic is a summary of all controlled parts. This reports total dollar commitments for the quarter and average price, quality, delivery and total indexes. The index numbers answer these questions generally: are prices up or down? is quality performance better or worse? are deliveries more dependable? The total index

shows whether purchasing performance as a whole is better or worse than it was the previous year.

In addition, the summary reports total base dollars and the dollar variance. The total base dollars figure is the amount spent for the same items during the base year. The dollar variance is the price index applied to the total base dollars. It reports, in effect, how much more, or less, money would have been spent in the current year if IBM had bought the same quantity of materials as in the base year but at the new price. The figure shows immediately, in dollars, whether price changes have been significant or not.

The procurement manager receives other reports giving essentially the same information broken down by vendors, buyers, product lines, and commodities. In each case the computer separates the parts into categories, derives average indexes for the group, and calculates the dollar figures. In these reports the dollar variance is especially significant, as it serves to call attention to those vendors, buyers, end-products, or commodities particularly affected by price increases.

By comparing these values to a base period, purchasing is measuring price, quality, and delivery performance on a relative basis. In most instances this relative measurement is good enough to give a clear indication of purchasing trends.

But sometimes more absolute standards are desirable especially

in rating vendors. A vendor who ships 15 days late every time, could keep his delivery index at 100 from year to year, just by being consistent. But his performance would still be far from satisfactory. Endicott purchasing guards against this with certain absolute measures which it incorporates into the rating program on a selective basis.

To develop an absolute price index, a purchasing engineering group compares the part price with a cost estimate based on material market prices and production and labor costs. It calculates general vendor costs, not IBM's own manufacturing costs, which may not be representative.

### Set Quality Standard

Purchasing has set an absolute standard of quality—acceptance of 95% of the shipments during the period in question. For delivery, seven days from the agreed date is considered satisfactory.

Indexes based on these absolute ratings are calculated quarterly for those vendors and parts that require more careful analysis than relative standards permit.

Although the reports and performance data available through the 650 system go far beyond the capabilities of most purchasing systems, they are not exhaustive. Many other reports and analyses are possible. Once quantities, prices, and indexes for all purchased parts are accessible to the computer, it is possible to arrange and analyze them in any combination. As Herciga points out: "The more you put into the system, the more you can do with it."

► END



# When Are Contract Changes Legal?

*Although any part of a purchase order or contract may be changed after it is written, both parties must agree to the change to make it valid. Also, a modification is subject to the same legal requirements as the original contract.*

By Marshall Coke

**W**HEN A purchasing agent formulates a contract or purchase order he usually endeavors to anticipate possible contingencies. But inevitably, circumstances arise making it necessary to alter or modify some contracts after they have been written. A certain amount of precaution should be exercised in making changes, so familiarity with a few of the legal principles involved is desirable.

A contract of sale may be modified in any of its provisions by agreement of both parties. Such factors as the time, mode or place of delivery may be modified as well as the price, terms of payment, or conditions. Even the subject matter or parties to the contract may be changed.

Most important, the purchasing agent must make certain that an intended modification is not misconstrued as a rescission of the contract. For instance, if after writing an order for ten new automobiles it develops that only eight are required, it would not be advisable simply to wire the vendor that the quantity is changed from ten to eight. He may interpret the wire as a rejection of the ten automobiles as required by the contract. If, in the event of litigation, the court

were to find that the attempted modification actually constituted a rescission of the contract, the vendor would be in a position to secure damages for the breach of the contract. However, if one of the parties suggests a change and makes sure it is accepted by the other, the modification becomes an element of the contract and avoids the danger of rescission. For instance, when in a Nebraska case the buyer accepted a seller's proposal that delivery be made later than the date specified in the contract, the court held that the change was merely an extension of time for delivery and that no new contract was made.

## Be Clear on Contract Changes

When a new contract covers the same subject as an old but unexecuted contract, it would seem on principle that the new contract constitutes an implied rescission of the old. However, if such a rescission is intended, it should be so stated in the new contract. Ordinarily a modification of one or more terms leaves the other terms in full force and effect, as long as the gist is not completely inconsistent with the original.

A modification becomes a part of the original contract, and does not abrogate or supersede it except in the matters covered by the modification. To fulfill their obligations the parties must com-

ply with the terms of the modified contract. But where modifications have not superseded the contract, its original provisions determine the rights of the parties.

## Find Another Buyer

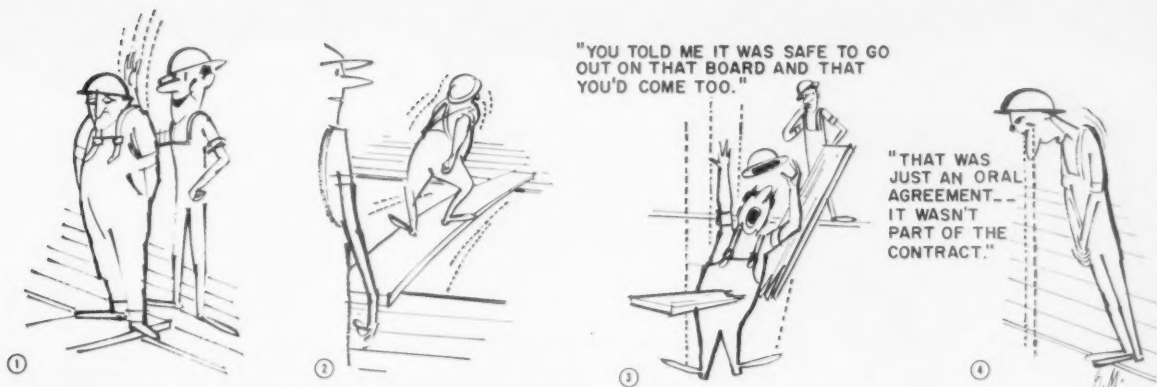
A modification of a contract of sale is effective from the time it is agreed upon. A purchasing agent with a contract to buy commodities he no longer requires, may escape liability if he can find a different purchaser willing to assume the contract. In such event, only at the moment all parties assent to a change of purchasers is the original purchaser released and does the substituted buyer become liable.

It is important to remember that the formalities of offer and acceptance apply equally to the modification as to the original formulation of the contract. But, although mutual assent is necessary, it may be implied from the conduct of the parties. Assent may be shown by anything establishing a mutual agreement. However, a mere failure to reply to or reject a proposed modification does not show assent. Coupled with other conduct and circumstances, however, it may be sufficient to constitute acceptance.

For example, in a Louisiana case a seller wrote a letter offering to accept return of part of some goods and required the buyer to

Marshall Coke is the pen name of a well-known member of the bar who holds a position in the purchasing department of a large corporation.





"Separate oral agreements, made at the same time a contract is written, are not enforceable. The legal assumption is that the written contract contains the full and final agreement of the parties up to the moment the contract is made."

accept the offer by return mail and follow his acceptance by immediate shipment. The buyer did not immediately return the goods and the seller, by subsequently demanding payment of the entire account, effected a valid withdrawal of his offer to accept the return.

A contract may be modified by writing the changes on the original. The parties will not need to sign the contract again provided their intentions are clear. A party who asserts that a contract of sale has been changed or modified has the burden of proving it with clear and convincing evidence.

It is a well known rule that contracts, in order to be enforceable in courts of law, must be supported by some consideration. This consideration distinguishes a contract from a promise. A promise to do something is not enforceable at law, a point which applies also to a modification.

Most authorities have held an agreement to modify a contract must be supported by a consideration to the same extent that an original contract must have consideration. On the other hand, there is also authority for the view that no new consideration is necessary if the original contract has not yet been executed by either party. In this case, the consideration of the original contract is deemed sufficient. It is fairly well agreed that no new consideration is required when the alleged modification is not a true change but merely an agreement as to the meaning of a term in the original contract. Whenever a modifi-

cation of a contract is put in writing, the courts will presume that a consideration exists.

Warranties, an important contractual element to purchasing agents, must be supported by consideration. If a warranty is made at the time of the sale, it is supported by the consideration of the sale, and no further separate consideration is required. However, a warranty given after the contract of sale has been completed, must, in order to be effective in courts of law, be accompanied by a new and separate consideration. This is required with both the creation of new warranties and the modification of existing ones.

Consideration may take different forms. For instance, it has been held sufficient for a subsequent warranty that the buyer return part of the goods if he pays the purchase price in advance of the time set by the original contract. The advance payment then constitutes consideration. An agreement to accept and pay for more goods than called for on the original contract also may be sufficient consideration for the extension of warranties on the part of the seller.

If the buyer is entitled for any reason to return the property, a warranty given to induce him not to exercise that right but to keep the goods, is in itself sufficient consideration. However, if a sale is already complete and property in the goods has passed to the buyer, a modification by warranty merely to influence the buyer to perform what he is already obligated to do, is not sufficient con-

sideration. Authorities have held that a promise of additional performance for the same consideration, or a promise to pay additional compensation for the same performance, is invalid and unenforceable for lack of sufficient consideration.

Of primary importance to purchasing agents is the problem of when a contract can be modified by oral agreement. Under common law, a contract under seal could not be modified by a parol agreement made subsequent to the written contract. A contract of equal dignity was required for the purpose of modification. Thus a written contract could not be modified except by another written contract signed by the same parties. The modern view, however, is that sealed as well as unsealed contracts may be modified by verbal or written agreements not under seal. Not only may contracts which are originally oral be modified by parol or oral agreements, but oral modifications of written contracts have been sustained by the courts.

### Put It in Writing

One important point to remember is that separate oral agreements made at the same time a contract is written are not enforceable. The legal assumption is that the written contract contains the full and final agreement of the parties up to and including the moment the contract is made.

Many sales contracts contain a clause which states in effect that no modifications of the contract

(Please turn to page 184)

# Imaginative Purchasing Pays Off for Amerock

*Director of Purchases Bill Schnorenberg is firmly convinced that purchasing can't stand pat just because it's doing the job. He's constantly on the lookout for new ideas to improve purchasing performance and when he finds them he puts them into effect.*

By Ted Metaxas,  
Midwestern Editor

IN THE LOBBY of Amerock Corp., Rockford, Ill., is a glass-paned cabinet that the purchasing department calls the "Ferris wheel". The cabinet holds 18 trays containing 36 parts identified by cards that tell what the

part is and how it's used. By pushing a button, vendors can rotate the trays to examine whatever parts they are particularly interested in.


The idea came from Bill Schnorenberg, director of purchases,


who saw a similar unit being used to display jewelry. Though he classes the cabinet as a "successful failure", it is symbolic of his alertness to new ideas.

Schnorenberg believes that the severe demands placed on pro-

**Amerock**  
CORPORATION  
4000 AUBURN STREET, ROCKFORD, ILLINOIS • PHONE 5-0881


GENTLEMEN:





SHIPMENT OF OUR PURCHASE ORDER NO. \_\_\_\_\_ WOULD BE MADE  
ON \_\_\_\_\_ PLEASE MAINTAIN THIS PROMISE.

WE'RE  
LOOKING  
FOR  
INFORMATION



VERY TRULY YOURS,

\_\_\_\_\_  
DIRECTOR OF PURCHASES

YOUR ORDER NO. \_\_\_\_\_

IS BEING SHIPPED ON \_\_\_\_\_

FIRM \_\_\_\_\_

BY \_\_\_\_\_

**AMEROCK CORPORATION**  
4000 AUBURN STREET  
ROCKFORD, ILLINOIS  
ATT: PURCHASING DEPARTMENT

(DETACH AND RETURN IN A STANDARD WINDOW ENVELOPE)

Amerock uses a series of cartoon-illustrated follow-up letters to get vendor confirmation on when delivery will be made.

When a price change is received, and accepted, purchasing fills out a notification slip which goes to proper factory department so that change can be made in traveling requisition. Fast action in entering price changes cuts paperwork, helps accounting.

Date \_\_\_\_\_

First Aid  
Ray Bissman  
Connie Carlson  
Pat Drennen  
Bob Freeman  
Gile Knutson  
Dick Larson  
S. V. Linderoth  
Frank Nelson  
Sy Shannon  
Bob Taylor  
Jerry Wedige

Please change the price of \_\_\_\_\_

From \_\_\_\_\_

To \_\_\_\_\_

Vendor \_\_\_\_\_

Purchasing Dept.  
*Bill Schnorenberg*



Vendor bid on an item being studied for make or buy decision by Amerock's purchasing team. Left to right are S. V. Linderoth, W. H. Schnorenberg, director of purchases, and Gile Knutson. The cost department gives purchasing an estimate on "make" charges.



Motorized cabinet displays parts. Purpose is to get cost cutting suggestions from supplier salesmen. Director of Purchases Bill Schnorenberg got the idea from jewelry exhibition.

curement make it impossible for purchasing to stand pat. A little over two years ago he installed a traveling requisition system that today covers 90% of the 10,000 items purchased by his two assistants and himself. A feature of his traveling requisition system is the way it has been set up so that price changes can be entered quickly.

Soon, computer-directed material control, supervised by purchasing, will be given a pilot run. To get ready for the change Schnorenberg has been visiting other plants where similar systems are already in operation.

#### More Is On the Way

A combination purchase order-receiving report is now being tested—and may be close to adoption. Time studies have been made on the conventional system of separate forms. In progress at this writing is a time study and cost evaluation of the combination form.

The combination purchase order-receiving report is expected to save clerical time and speed up invoice handling so that Amerock can take advantage of quick payment discounts. The new form should also improve

inventory turnover.

Amerock's conventional ordering and receiving system calls for two forms—the purchase order and the receiving report. The purchase order has four copies: vendor, purchasing file, receiving department, and material control. The receiving report, which is made up from the packing report accompanying shipments, has five parts, with copies for purchasing, accounts payable, material control, receiving's file, and the originating department.

The new form on the other hand combines the functions of the two separate forms. The first four copies serve as the purchase order and the final five as the receiving report. Distribution of copies is the same as with the two-part form. In effect, the combination form enables Amerock to prepare the receiving report in advance rather than having to wait for the packing report.

On partial shipments, receiving adjusts the figures on the form before distributing its five copies. It also prepares a new receiving report which is used when the balance of the order is delivered.

After delivery is made, purchasing compares its receiving report copy against its p. o. copy. The

accounts payable copy of the receiving report also goes to purchasing. After it's checked, the form is put in a pending invoice file. When the supplier invoice arrives, it is verified for quantity and price. If all's well, it is forwarded to accounting along with a copy of the p. o. Both complete and partial shipments are paid promptly.

#### Keep Tabs on Price Hikes

Of course, invoices do not always agree with purchasing's records. Clerks call discrepancies to buyers' attention. If a price hike is accepted by a buyer, purchasing fills out a mimeographed price change slip which is sent to production or other departments. There, the price change is noted in the proper column of the traveling requisition.

With the slip system, price changes are made on the requisitions almost immediately. Thus, outdated prices don't get on purchase orders and a lot of correspondence with suppliers is eliminated.

Since purchasing clears the invoices, it learns immediately about price changes and gets a head start in investigating them

(Please turn to page 188)

# **Your local Moline Chain OFFERS MORE**

**His engineering staff is capable of helping solve power transmission problems.**

Your Moline distributor knows the power transmission business from A to Z, usually has the right answer at his fingertips because his engineering staff has the technical know-how to solve any problem. When you call your Moline man, you know you're talking to an expert and you can rely on his advice and knowledge.

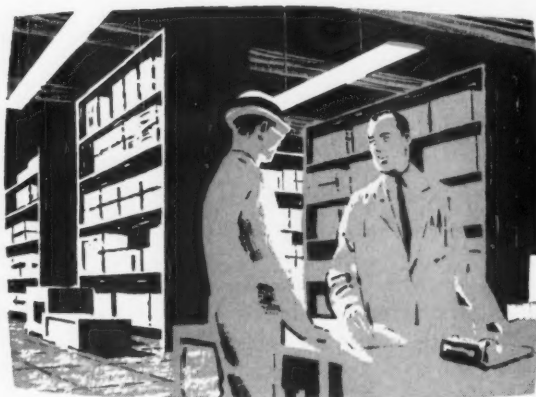


**He offers experienced technical help to give you special service.**

Most Moline distributors have been in business for many years and have an array of qualified technical men—machinists, gear cutters, installation crews and maintenance men—to help you with special service when you need it.

**He maintains a diversified stock of power transmission equipment.**

You'll save precious time when you call on your local Moline distributor for power transmission equipment. You don't have to shop around because he normally carries in stock components of every description. His inventory includes bearings, reducers, clutches, couplings, pulleys, takeups... virtually any item needed for efficient power transmission.



## **Moline Chains**

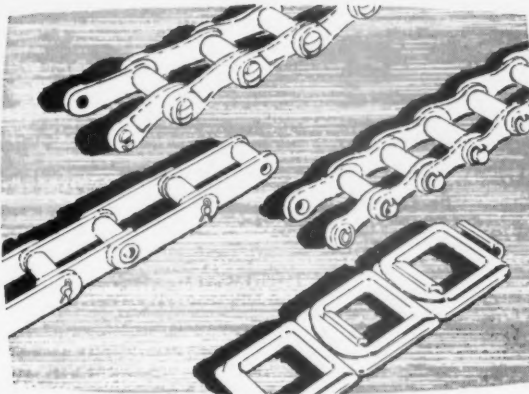
**Leaders for  
60 years**

*for conveying, elevating and power transmission*

**MOLINE MALLEABLE IRON CO., St. Charles, Illinois**



# Distributor than "order taker" service...



**He carries a large stock of Moline chains, sprockets and buckets.**

Your Moline distributor can supply you immediately with chain, sprockets, buckets, sheaves and attachments for any industrial conveyor, elevating or power transmission application. He is always available for help when you need "specials" in malleable chain and attachments because Moline has long been a prime source for OEMs when special chain is required.



**He stands ready to give you immediate delivery from stock.**

You can rely on fast service when you call your Moline distributor. Tremendous inventories on hand (many distributors stock up to 7,000 power transmission and conveying items) enable him to fill orders and have them on their way within 24 hours. So depend upon your Moline distributor for all your power transmission and conveying supplies and be sure of conscientious service and quality products.

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**ALABAMA,** Montgomery, Alabama Bearings Co., Standard Elect. Mach. Co.; Mobile, Bearing & Trans. Sup., Turner Sup. Co.; Decatur, H. & H. Sup. Co.; Birmingham, Industrial Sup., Inc.; Sheffield, Martin Sup. Co.; Brewton, Pensacola Mill Sup. Co.

**ALASKA,** Ketchikan, Northern Mach. Works, White Motor Co.; Sitka, Sitka Engine & Equip. Co.; Wrangell, Wrangell Mach. Works.

**ARIZONA,** Flagstaff, Arizona Sup. Co.; Phoenix, Seamon Bearing Co.; Tucson, Seamon Bearing Co.

**ARKANSAS,** Little Rock, Allied Arkansas Bearing Co., Mill & Mine Sup. Co.; El Dorado, American Sup. Co.; Pine Bluff, Arkansas Mill Sup. Co.; Fort Smith, Boal Fdry. & Mach. Co.; West Helena, A. S. Kelly Co.

**CALIFORNIA, LOS ANGELES, J. W. MINDER CHAIN & GEAR CO.; SAN FRANCISCO, CHARLES A. FOWLER CO.; Fresno, Gordon Equip. Co., George M. Philpott Co.; North Sacramento, Fred E. Barnett Co.; Stockton, Stockton Bearing Co.; Stockton Iron Works, Standard Iron Sup. Co.; Lynwood, Best Chain Co.; Crescent City, Crescent City Mach. Works, El Centro, W. H. Douthitt, San Leandro, Monarch Corp.; Hemet, Steve's Auto Parts; Arcata, Reliable Hardware.**

**COLORADO,** Denver, Allen Bearings Sup., Power Trans. Inc.; Grand Junction, Bearings & Power Trans.

**CONNECTICUT,** Waterbury, Valley Mill Sup. Co.

**DELAWARE,** Wilmington, J. E. Bennington Co.; Georgetown, Hemco Dist. Co.

**FLORIDA,** Fort Pierce, Atlantic Equip. & Sup. Co.; Ocala, H. A. Busbee Co.; Jacksonville, J. G. Christopher Co., C. W. Farmer Co., Georgia Sup. Co., Parker, Helms & Langston, Inc.; Tampa, Ellis Edson Sup. Co., Bert Lowe Sup. Co., Mulberry, Florida Conveyor & Equip. Co.; Miami, Gondas Corp.; Winter Haven, Haven Mill Sup. Co., Inc.; Pensacola, Industrial Marine Sup. Co., Pensacola Mill Sup. Co.; Orlando, Mill Sup. Inc.; Lakeland, Miller Bearings, Mine & Mill Sup. Co.; Panama City, Panama Mach. & Sup. Co.

**GEORGIA, ATLANTA, R. C. WATKINS ALLIED COMPANIES, INC.,** Industrial Service Co., Southern Belting & Trans., Augusta, Augusta Mill Sup. Co., Richmond Sup. Co., Tool Sup. Co., Dalton, Dalton Bearing Service, Macon, C. W. Farmer Co., Macon Sup. Co., Savannah, Georgia Sup. Co.; Shelman, Jim Horne Mill Sup. Co.; Woodstock, T. M. Schultz Co.; Streator, Streator Industrial Sup.; Peoria, Hagerty Bros.

**HAWAII,** Honolulu, R. S. Pell Co., Ltd.

**IDaho,** Boise, Western Bearings, Inc., Yankee Mach. Shop & Sprocket Co., Inc.; Pocatello, Flaherty Sales Co.; Wallace, Coeur D'Alenes Co.

**ILLINOIS, CHICAGO, HOLMES & JOHNSON, INC.,** Chain Sales, Inc., Baran Gear & Trans., Palmy Gear & Trans. Co., Power Trans. Co., Republic Bearing & Trans., Rockford, Berry Bearing Co.; Aurora, Foy Sup., Industrial Sup. Co.; Fairfield, Mid East Sup. & Mach. Co.; Carpentersville, Northern Illinois Sup. Co., Inc.; Woodstock, T. M. Schultz Co.; Streator, Streator Industrial Sup.; Peoria, Hagerty Bros.

**INDIANA,** Terre Haute, B. F. Crawford Co.; Goshen, Day Equip.

**IOWA,** Fort Dodge, Fort Dodge Mach. & Sup. Co.; Des Moines, Globe Mach. & Sup. Co.; Davenport, Globe Mach. & Sup. Co.; Spencer, Globe Mach. & Sup. Co.; Cedar Rapids, Globe Mach. & Sup. Co.; Sioux City, Standard Bearings Co.

**KANSAS,** Wichita, B.R.C. Bearing Co., Inc.; Coffeyville, Kansas Bearing Sup.

**KENTUCKY, LOUISVILLE, FRED WENLE,** Albert B. Crush & Co., Butler Sup. Trans. Co., Louisville Mill Sup. Co.; Hopkinsville, Cayce Mill Sup. Company.

**LOUISIANA,** Alexandria, American Sup. Co.; New Orleans, Atlantic Gulf Sup. Co., C. T. Patterson Co., Service Sup. & Engr. Co.; Lake Charles, Behring Bearing Service of La.; West Monroe, Colossus Midland Belting & Sup.; Shreveport, Colossus Industries Inc., Midland Belting & Sup.; Baton Rouge, Louisiana Bearing Co.

**MAINE,** Bangor, Snow & Nealley.

**MARYLAND,** Baltimore, L. A. Benson Co.; Hagerstown, Hagerstown Equip. Co.

**MASSACHUSETTS, QUINCY, UNION GEAR AND SPROCKET CORP.,** Needham Heights, Babcock Equip. Co., Cambridge, Bellamy-Robie, Inc., Olmsted & Flint Corp., Lewis E. Tracy Co.

**MICHIGAN, BIRMINGHAM, GEORGE E. SINKO,** Adrian, Beal Sup. Co.; Saginaw, Beckley Equip. Co., Hydro-Mechanical Sup., Northern Indust. Sup.; Muskegon, Factory Sup. Co., Lake Shore Mach. & Sup.; Detroit, Paul Horst Co., Majestic Stamping Co., M. P. T. Drives Co., Production Industries, Republic Rubber and Sup. Co., Tool Sup. Co.; Power, Wilco; Grand Rapids, Mackay Indust. Sales, Michigan Bearing Co., Schuster Equip. Co., Inc.; Kalamazoo, R. M. Sorlie Co.; Hazel Park, Wellon Rubber & Asbestos Co.

**MINNESOTA, HOPKINS, R. L. ACTON & ASSOCIATES,** Fergus Falls, Empire Sup. Co.; Thief River Falls, Falls Sup. Co.; Minneapolis, Industrial Sup. Co., Inc.; Lakeland Engr. Equip., Minnesota Bearing, Austin, Powerite Elec. Motor.

**MISSISSIPPI,** Jackson, Harper Fdry. & Mach. Co., Mississippi Fdry. & Mach., Greenville, Jackson Sup., Inc.

**MISSOURI, KANSAS CITY, DAVID M. BOATRIGHT, S. D. Calloway Co., Inc.,** Industrial Bearing & Trans. Co., Noelling Steel Sales Corp., Kansas City Rubber & Belting, Lebanon Sup. Co., St. Joseph, Wilhagen Mach. & Sup.; ST. LOUIS, JAMES B. FLAHERTY, Missouri Elec. Sales & Serv., R. J. Bearing Corp., Carter-Ryco Sales, Inc.; Springfield, Acme Fdry. & Mach. Co.

**MONTANA,** Great Falls, Carl Weissman & Sons; Missoula, Power Trans.

**NEBRASKA,** Omaha, Edw. J. Heck & Sons Co., Omaha Gear & Parts; Grand Island, Kelly Sup. Co.

**NEVADA,** Las Vegas, Reliable Bearing & Sup.

**NEW JERSEY,** Plainfield, R. M. Barwise, Inc.; Fair Lawn, Service Power Trans. Co.; Trenton, Trenton Bearing Co.

**NEW MEXICO,** Albuquerque, Harry Cornelius Co.

**NEW YORK, NEW YORK, R. M. Barwise, Inc.,** Cango Trans. Co.; Troy, Bearing Distrib.; Rochester, H. M. Cross & Sons; Bronx, Duane Trans. & Equip. Corp.; Riverhead, Eastern Welding Co.; Hicksville, Long Island Trans. Co.; Buffalo, Mery Chain Belt Co., Power Drives, Inc.; Syracuse, Sawyer Engr. Co., Syracuse Bearing; Albany, Transmatic Equip. Co.; Elmira, Harold Van Ausden Mill Sup.; Lockport, Ward Bros. Mill Sup. Co.

**NORTH CAROLINA,** Lenoir, Blue Ridge Hardware & Sup. Co.; Statesville, Bryant Sup. Co., Tri-State Distrib., Inc.; Gastonia, Bryant Sup. Co., Gastonia Mill Sup. Co.; Rocky Mount, Carolina Mach. & Sup. Co., H. A. S. Inc.; Kinston, Carolina Mach. & Sup. Co.; New Bern, Craven Fdry. & Mach. Co.; Mount Airy, Currier-Withers Sup. Co.; Raleigh, Elect. Equip. Co.; Wilmington, General Sup. Co., Mill & Contractors Sup. Co., Wilmington Iron Works; Lexington, General Trans. Sup.; Roanoke Rapids, Industrial Irons, Inc.; Charlotte, Industrial & Textile Sup. Co., Henry Walke Co.; High Point, Kester Mach. Co.; Winston Salem, Kester Mach. Co.; Greensboro, O'Dell Mill Sup. Co.; Shelby, Shelby Sup. Co., Inc.; Burlington, Sykes Sup. Co.

**NORTH DAKOTA,** Fargo, Empire Sup. Co.; Jamestown, Empire Sup. Co.; Bismark, Empire Sup. Co.; Grand Forks, Grand Forks Sup., Minot, Minot Sup. Co.; Williston, Williston Sup. Co.

**OHIO,** Cincinnati, Cincinnati Trans.; Cleveland, C. J. Edwards Co.; Toledo, Gear Prod. Co., Toledo Belting & Sup.; Columbus, White-Ort Co.; Canton, Wilcox Indust. Sup.

**OKLAHOMA,** Tulsa, Allied Bearings Sup., Clark Bearing & Sup. Co.; Chickasha, Chickasha Gin & Mill Sup.; Oklahoma City, Dagwell-Dixie Co., Equipment Sales, Power Equip. Inc.; Muskogee, Pate Indust. Sup.

**OREGON, PORTLAND, J. W. MINDER CHAIN & GEAR CO.,** Medford, Cal-Ore Mach. Co., Inc.; Eugene, Electric Steel Fdy. Co.; Astoria, Fisher Bros. Co.; North Bend, Industrial Steel & Sup. Co.; Salem, Mill Sup. Co.; Grant Pass, Pacific Logging & Mill Sup.

**PENNSYLVANIA, ARDMORE, JOHN A. SHOEMAKER,** Philadelphia, D. P. Brown Co., Inc., Rodney Davis Gear Co., Lindsay-Overholzer & Co., Rothman Equip. Co., Harrisburg, Industrial Motor Sup. Co., Hazleton, Industrial Sup. Co.; Allentown, Keystone Bearing & Sup.; Pittston, Medical Industries Inc.; Pittsville, Chas. C. Morris Co.; Lancaster, Reilly Bros. & Raub, Scranton, Sherrin Bearing Co., Muncy, Sprout Waldron & Co.

**PITTSBURGH, CHARLES R. SIMMONS,** Banbury Equip. Corp., Hartley-Rose Co., Ritter Engr. Co., New Kensington, Burrell Indust. Sup.; Ridgway, North American Indust. Sup., Inc.; Uniontown, Tri-State Mine Sup. Co.

**RHODE ISLAND,** Providence, James A. Strack.

**SOUTH CAROLINA, COLUMBIA, THOMAS S. GLAZERBROOK,** Columbia Sup. Co., Thackston Driv. Sup. Co.; Greenville, Carolina Sup. Co.; Charleston, Charleston Sup. Co.; Spartanburg, Crawford Mill Sup. Co.; Noland Co., Inc.; Rock Hill, Manufacturers' Sup. Co.; Florence, O'Brien-Allice Co.; Anderson, Seabrook Trans. Co.; Orangeburg, J. M. Smalls Hardware Co.; Summerville, Southern Mill Sup. Co.; Sumter, Sumter Mach. Co.

**SOUTH DAKOTA,** Sioux Falls, Western Bearing & Sup.

**TENNESSEE, MEMPHIS, MALCOLM S. CONE JR.,** Dabney-Hoover Sup. Co., Lewis Sup. Co.; Nashville, Industrial Sales Co., Inc.; Kersh-Simmons Co., Inc.; Jackson, Motor Parts & Bearing Co.; Chattanooga, Noland Co., Inc.; Volunteer Bearing & Trans.; Knoxville, Bumping Belting & Sup. Co.; Industrial Belting & Sup. Co.; W. Savage Co.

**TEXAS, DALLAS, R. C. BROWN CO.,** Allied Belting & Trans. Co., Bearings & Power Trans., Briggs-Walker Mach. Co., Coastal Plains Sup. Co., Engineering Sup. Co., Texas Rubber Sup., Lubbock, Bigham Gin Sup. Co., Consolidated Gin & Sup., Industrial Sup. Specialists, M. B. McKee Co., Bearing Specialists, Fort Worth, Con El Sales & Engr. Co., General Indust. Sup., Great Western Sup. Co., Hall Bearing Co., Welco Co.; Conroe, Conroe Mill Sup. Co.; Tyler, Collingsham's Inc.; Longview, Collingsham's Inc., Heritage Tool & Sup.; Plainview, Diamond Indust. Sup.; Houston, Diamond Sup. Corp., Husky Sup. Co.; Texas Belting & Mill Sup.; Brownsville, Gilbert Bearing Service; Amarillo, A. D. Guegnheim Co.; Sherman, Hardwick-Etler Co.; McAllen, A. M. Hassell Sup. Co.; Marshall, E. B. Hayes Mach. Co.; Lufkin, Lufkin Fdry. & Mach. Co.; El Paso, Midcap Bearing Co.; Patterson Sales Co.; Pecos, Navarro Sup. Co.; Petersburg, Toot Hartke Co.; Richmond, Southern Steel Prod. Co.; Wichita Falls, Wichita Bearing Co.

**UTAH,** Salt Lake City, All Trans. Props., Power Trans. Sup.

**VERMONT,** St. Johnsbury, Reed Sup. Co.

**VIRGINIA,** Bassett, Blue Ridge Hardware & Sup. Co.; Martinsville, Blue Ridge Hardware & Sup. Co.; Lynchburg, J. C. Ferber Co., Ferber-Johnson Co., Inc.; Roanoke, Graves Humphries' Inc.; Waynesboro, Mize Sup. Co.; Petersburg, Toot Hartke Co.; Richmond, Southern Steel Prod. Co.; Norfolk, Taylor Parker Co., Henry Walke Co.

**WASHINGTON, SEATTLE, CHAIN GEAR, INC.,** Spokane, Empire Bearing Co., Nett-Atwater Co.; Everett, Greenhead's Indust. Power Trans. Sales, Tacoma, Reed Mach. Co.; Bellingham, Schuman Steel Prod. Inc.; Mount Vernon, Trans-Bearing Co.; Longview, Longview Equip.

**WEST VIRGINIA,** Bluefield, Bluefield Hardware Co.; Charleston, Capital City Sup. Co.; Logan, Guyan Mach. Co.; Elkins, Valley Mill Sup. Co.; Huntington, Wall Coneveyer & Mfg. Co., Banks-Miller Sup. Co.; Mound Vernon, Trans-Bearing Co.; Longview, Longview Equip.

**WISCONSIN,** Green Bay, Libert Bearing, Madison, Richard E. Ela Co.; Wausau, Spjoberg Indust. Sales, Milwaukee, Equipment Specialty Co.

**CANADA,** Vancouver, Victoria, Western Equipment Ltd.; British Columbia, Bennetts Ltd., Okanagan Equip. Ltd.; Alberta, Electrical Ind. Ltd., Saskatchewan, Bearing & Trans. Supply, Tractor Repair Parts Co.; Manitoba, Cuthbert Co. Ltd.

For More Facts Write No. 202 on Information Card—Page 32

# New Chemicals Fight New Fires

**F**IRE-KILLING chemicals that are themselves combustible, dry powders that may be sprayed under pressure, fire extinguishers smaller than a bowling ball—these are just some of the newer products to help industry put out its fires.

Along with its successes, modern technology is also creating new and unusual fire hazards. Countless applications for materials that were once considered rare or unworkable mean that industry is bringing new sources of danger into its plants. These potential fuels, many easily combustible, defy or resist the action of ordinary fire extinguishing agents.

Metal fires, for instance, were almost unheard of thirty years ago, except in chemistry lecture demonstrations. Today, fires involving magnesium, lithium, or other inflammable metals are occurring more and more frequently.

To control such fires takes new extinguishing agents, and often special equipment to apply them. As a result there are now a number of new extinguishers on the market. Some are designed for specific hazards, and although limited in application, unusually effective when properly used. Others cover more general needs and offer broad-spectrum fire protection. A dry-type extinguisher for general plant use looks like a small bowling ball.

One manufacturer, the Ansul Chemical Co., Marinette, Wis., has developed a number of the new agents in its own labora-

tories. Many have come from studying specific fire problems in government and industrial installations. Some of the most important are the dry-type extinguishing agents available in many types and forms.

C-D-C is a foam-compatible dry chemical that is particularly effective in gasoline fires. It was originally developed for the U. S. Navy to allow rescue operations in airplane crashes. The powder quickly subdues the flames, then permits completion of the job with a thorough but time-consuming application of foam. Until the development of C-D-C, it had

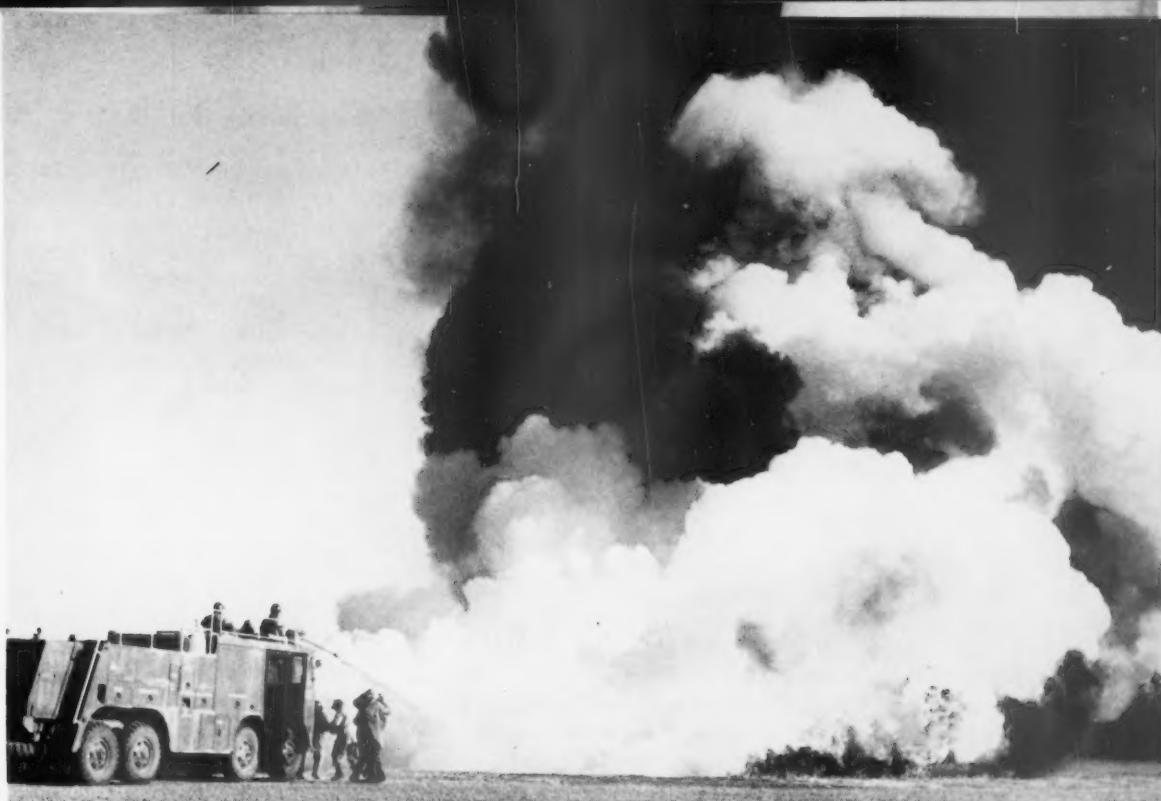
been impossible to use the two together as the dry chemical would quickly break down the foam.

A lithium fire problem at a large chemical plant resulted in LITH-X, a graphite base dry powder that can be expelled from a fire extinguisher. Although made to control lithium, it has since been used successfully to put out fires in other combustible metals.

MET-L-X was developed to provide a satisfactory method of extinguishing sodium fires for the Knolls Atomic Power Laboratory. It was the first powdered extinguishant for metals that could



Using two 30-lb. extinguishers, firemen put out fire in magnesium casting. The chemical is MET-L-X, a powder used to quench many kinds of metal fires.



Firefighters attack an 800-gallon gasoline spill fire foam-compatible dry chemical. Fire is quickly subdued as powder is sprayed through nozzle under pressure.

be applied from an extinguisher. Until then, poor flowing qualities of powders made it possible to apply them only with scoops or shovels. Subsequent tests have shown that MET-L-X is also effective in extinguishing fires in magnesium turnings and castings, aluminum, potassium, zirconium, titanium, and the sodium-potassium alloy, NaK.

#### Improve Compounding Methods

Ansul has found that a potassium bicarbonate dry chemical, which it calls PURPLE K, is more effective than sodium bicarbonate, perhaps the most commonly used dry chemical extinguisher today. Although at first the chemical tended to cake while in storage, improved compounding methods have increased its moisture repellancy and also its foam compatibility. The use of PURPLE K will increase considerably once the problem of high processing cost is overcome.

TMB, short for tri-methoxy-boroxine, is an extinguishing agent specifically compounded for magnesium fires. Unusual because it is itself inflammable, TMB quickly kills the fire by leaving a glassy boric oxide coating on the

magnesium, thereby thoroughly excluding air. Its combustibility, however, makes its use advisable only by trained firefighters.

Recent research projects have resulted in agents to extinguish fires in metal alkyls. The tests resulted in a wider use of the existing LITH-X and the development of a special dry chemical, MET-L-KYL, to control and extinguish chemical in triethyl-aluminum. LITH-X extinguishes the burning liquid by absorption alone, whereas MET-L-KYL first extinguishes the flame, then prevents reignition by absorption.

Among the newest extinguishants to be investigated are the halogenated hydrocarbons. Carbon tetrachloride is the oldest and best-known chemical in this group. The recent ones include a number of hydrocarbons compounded with fluorine and bromine, two of which, Halons 1301 and 1203, have been studied extensively by many manufacturers.

Ansul has determined that Halon 1301 has great fire extinguishing potential and has designed an extinguisher to apply it. Although tests have not been completed, it is expected that Halon 1301 will find widespread use for

special fire hazards, even though it is still comparatively expensive.

#### More Agents Slated

Industry may expect an increasing number of fire extinguishing agents to appear on the market as fire control research laboratories move into high gear. Earlier tests did not explain the reasons for the difference in effectiveness of the various agents. Today the laboratories are avoiding the cut-and-try approach in an attempt to study the actual mechanism of extinguishment. Mathematical analysis has pointed out some of the factors. Spectroscopic methods show what actually happens when an extinguishing agent is added to a flame. Refinements in the technique make it possible to record the changes within a flame at intervals measured in millionths of a second, resulting in a slow-motion film of the reaction.

As the theoretical studies are paired with practical tests, better extinguishing agents will result, both for normal fire hazards and for the unique fire problems of modern industry.

Write No. 18 on Information Card—Page 32



# Low-Cost Copper Alloy Is Easily Worked

By E. E. Frisk,  
Chief Staff Metallurgist,  
Bridgeport Brass Co.

**M**ANUFACTURERS of electrical and electronic parts are finding increasing applications for sulfur copper—the latest addition to the family of high-conductivity, free-machining grades which includes leaded copper and tellurium copper. These alloys, all commercially available, are rapidly taking over applications once held by tough pitch copper, which has higher conductivity but a machinability rating of only 20.

Sulfur copper's machinability rating of 90 is a 450% increase over that of high purity copper. Parts may be hot forged, cold formed, machined, sheared, punched or coined easily. Distinct advantages over the other free machining copper alloys are found in its ability to be rolled, extruded, or forged without difficulty.

Sulfur copper, with mechanical properties comparable or superior

to those of tellurium copper and leaded copper, has lowest cost when scrap value is taken into account. In most applications it is a highly satisfactory substitute for tellurium copper, which is presenting cost problems because of the continued demand for tellurium in thermoelectric devices.

For screw machine shops, which figure scrap value in pricing bids, the fact that segregated sulfur copper scrap brings a markedly higher return than all other free-machining alloys should increase the attractiveness of specifying the alloy.

Because the alloying elements employed in sulfur copper have little compromising effect upon the mechanical and physical properties of copper, the alloy is suitable for conductor assemblies, switch parts and contact points, bolts and studs, transistor bases, nozzles and welding tips, clamps,

motor parts, and similar electrical components.

Currently, the alloy is available in regular rod shapes ranging from 0.062 to 3.0 inches for round rod and from 0.125 to 3.0 inches for hexagon, square and octagon rod.

In compounding sulfur copper, 0.30 per cent of fine high-purity sulfur is added to pure (OHFC) copper. Since sulfur is practically insoluble in copper in the solid state, the element is present as fine, uniformly distributed cuprous sulfide particles. Excellent resistance to corrosion over a wide range of environments is provided because sulfur so combined is inert.

### Works Better, Lasts Longer

The network of sulfide particles accounts for the high machinability rating. These particles help produce short chips which break away quickly from the cutting surface. Short chip time allows reduced clearance and rake angles which, in turn, result in increased cutting edge support, higher cutting speeds with decreased fouling, and prolonged tool life.

Tests have shown that machining time for drilling deep and standard holes is reduced substantially with sulfur copper. These operations have long posed production problems, especially on unalloyed copper parts.

No special problems are encountered in fabricating sulfur copper by common hot working methods. It can be hot formed within a recommended 1400-1600 degrees F. temperature range without danger of cracking and is excellent for secondary hot forging of intricate shapes. The alloy exhibits good ductility at elevated temperatures and is not sensitive to hot shortness and cracking during silver alloy brazing and soft soldering operations.

Silver plating or tin plating can be accomplished easily with conventional preparatory cleaning methods and without need for a preliminary copper strike. The sulfur additive is inherently non-reactive and will not affect or discolor plated surfaces even after long standing periods.

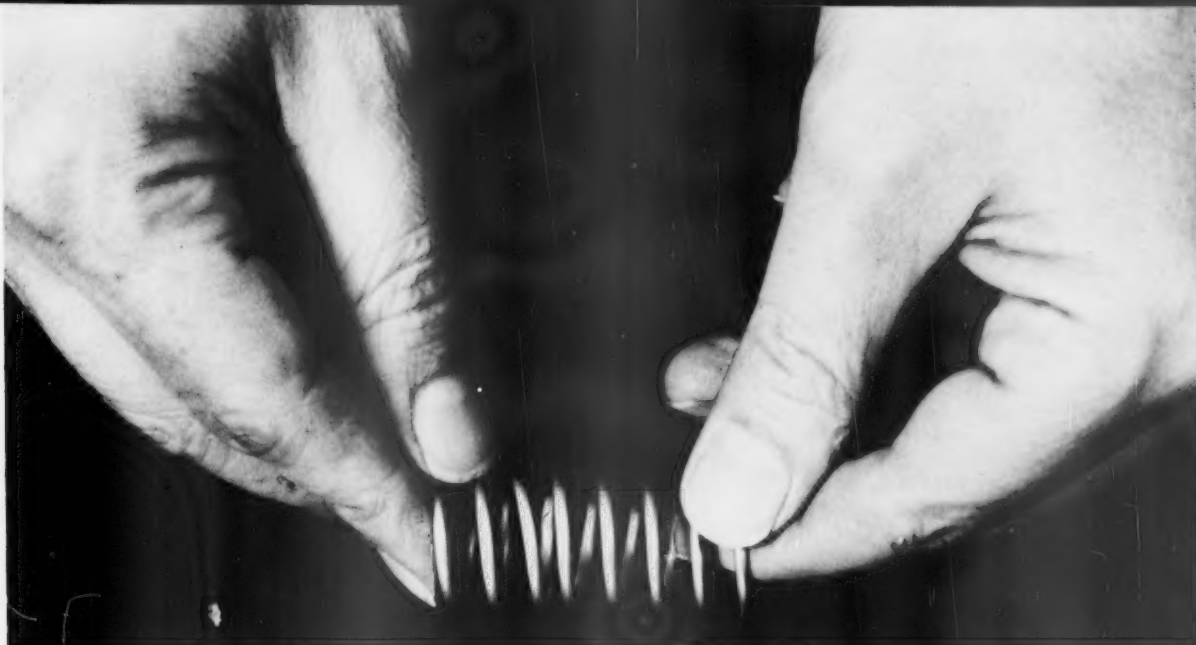
Write No. 19 on Information Card—Page 32

### Composition and Typical Properties of Sulfur Copper

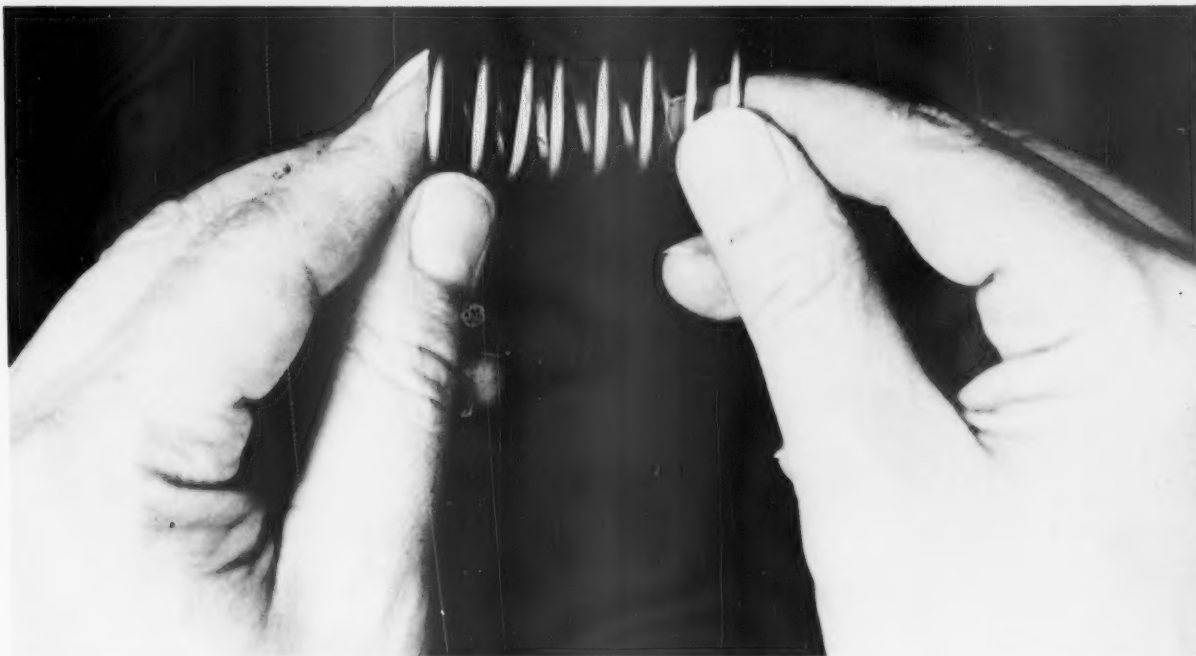
Composition	Half Hard	Hard
	99.7% copper 0.3% sulfur	
Tensile strength	42,000 psi	48,000 psi
Yield strength	39,000 psi	46,000 psi
Elongation in 2"	20-35%	18-20%
Hardness—Rockwell "B"	40-45	45-50
Relative machinability	90%	90%

Properties of tellurium copper and leaded copper are almost identical except that the machinability of leaded copper is 80%. Cost of sulfur copper, however, is less than that of the others. Half hard is standard temper for machining.





### N-S SPRING MATERIAL MAKES THE DIFFERENCE



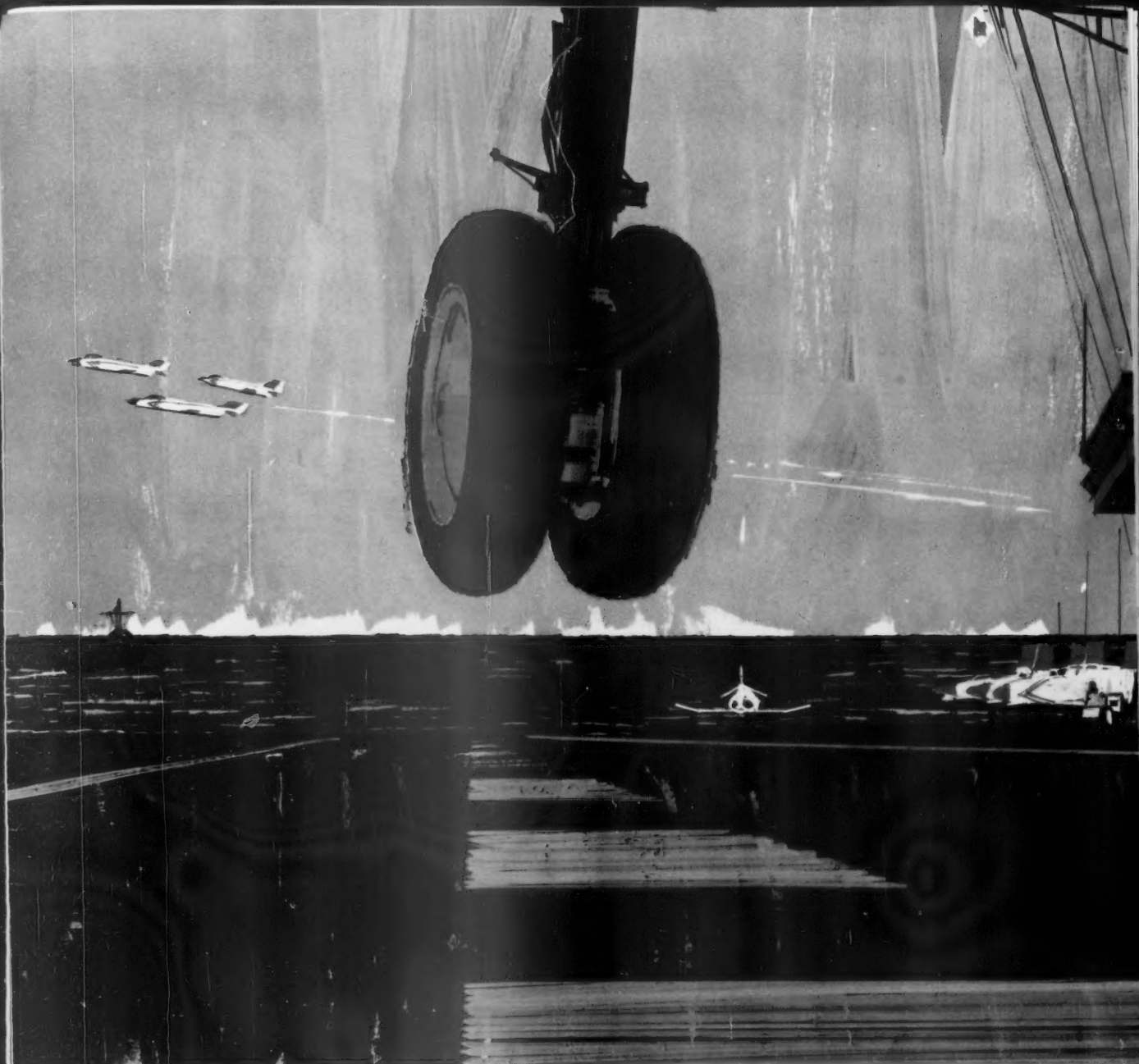
**MUSIC WIRE . . . STAINLESS . . . SUPERALLOY . . . HEAVY GALVANIZED . . . FLAT SPRING STEEL . . .** whatever your spring-material needs, **NATIONAL-STANDARD** has a complete line to give you one-source service. Many sizes are stocked for immediate delivery, others can be specially manufactured for 48-hour service, and all are produced with the quality and reliability of fifty-four years of experience. **MUSIC SPRING WIRE:** .002" to .250" diameter. **STAINLESS STEEL SPRING WIRE:** round—.0032" to .125" diameter; flat—.025" to .350" wide, .008" to .100" thick. **HEAVY GALVANIZED SPRING WIRE:** .012" to .060" diameter, 3-7% zinc by weight. **SUPERALLOY SPRING WIRE:** Inconel-X, NS-25 (L605), NS-A286, René 41, 17-7 PH, and others. **FLAT SPRING STEEL:** .001" to .065" thick, .015" to 6.5" wide tempered, .015" to 16" wide untempered.

61-W01A

FOR COMPLETE TECHNICAL DATA ON NS QUALITY SPRING MATERIAL WRITE TO:



**NATIONAL-STANDARD COMPANY**  
Niles, Michigan



## NS SPECIAL WIRE WITHSTANDS 1000°F

Landing hot jets like the McDonnell Phantom II at high speeds, means brakes and brake components must be able to withstand extreme temperatures without failure.

A leading manufacturer of brakes for jet aircraft came to National-Standard for help in finding a spring wire that would have high stress-temperature stability up to 1000°F. National-Standard engineers recommended an austenitic superalloy material, NS-A286, recently developed for spring wire applications by National-Standard. Tests showed that NS-A286 met requirements better than any other available alloy, yet cost only half as much as the next best alloy.

**SUPERALLOY PASSES TEST**—When brakes on the Phantom II are released, the NS-A286 return springs under the brake discs must separate the stationary stator discs from the moving rotor discs. The brake discs build up heat to 1400°F, which is quickly absorbed by the return springs, raising spring temperatures to as much as 1000°F. NS-A286 is a precipitation hardening alloy exhibiting as little as half the relaxation loss at 1000°F as comparable alloys show at 850°F. NS-A286 springs must retain their strength at this heat to separate the brake discs and guard against brake drag during landings.

To test NS-A286, engineers simulated stress-temperature characteristics of three landing conditions.



## TO BRAKE JETS

Heat builds up in the brakes in 30 seconds and remains for as long as 20 minutes. The springs must work in the heat against a high back pressure maintained in the aircraft hydraulic system. Springs must be operational for at least 45 normal landings, 5 high-speed, gross weight landings, and one aborted take-off stop, corresponding to stopping the plane just before it becomes airborne. Under all test conditions, NS-A286 met every rigid requirement.

EXPERIENCED ENGINEERING HELP of this kind, for jobs requiring high-quality wire, to meet special or unique applications, is available to you from National-Standard. Write for additional information to National-Standard Company, Niles, Michigan.



**NS-A286 SUPERALLOY WIRE**, produced by National-Standard, meets critical stress-temperature demands for coaxial return springs in brakes of F4H-1 Phantom II.



Manufacturer of Specialty Wire and Metal Products  
**NATIONAL-STANDARD COMPANY**  
 Niles, Michigan





## at Trans-Canada Air Lines Base

(Dorval, P. Q.)...



It's

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**WATER COOLERS**

Why take less... when CORDLEY offers more:

**More Cooler Experience.** Water Coolers are Cordley's *only* business, not a side line.

**More Assurance of Satisfaction.** Cordley's full 5-year guaranty is by far the strongest in the industry.

**More Help** in choosing the right coolers for your use...from Cordley's line of 28 job-rated models. 4214

### The New CORDWALL LINE



No plumbing shows. Flush to the wall. No dirt can get behind. 3 wall models for installation at any height. 5 floor models. See Yellow Pages for nearest Cordley Distributor. Ask for Catalog 61.

### CORDLEY & HAYES

Specialists in water cooling since 1889  
443 Park Avenue South, New York 16, N. Y.

For More Facts Write No. 204  
on Information Card—Page 32

## Products

### Small-Scale Water Filter Handles Up to 10 gpm



A water filter for small commercial applications will remove all precipitated iron oxide particles, sand, silt or any sediment visible to the eye. Compact unit is ideal for places where space is a problem, measuring only 14 in. high and 4 3/4 in. in diameter. Filter will handle flows up to 10 gals. per minute, pressures to 130 psi and temperatures to 100 degrees F. Replaceable porous stone cartridge can be cleaned and reused, and no tools are needed to remove or replace it. **Calgon Co., Div. of Hagan Chemicals & Controls, Inc., Hagan Center, Pittsburgh 30, Pa.**

Write No. 20 on Information Card—Page 32

### Air Hammer Kit Cuts Tank Clean-Out Time



An air hammer kit is especially designed to cut clean-out time on tanks, drums, vats and mixing kettles. Air hammer itself features metering trigger that lets the operator control blows per

minute all the way from 0 to 13,000 with finger pressure, getting its punch from speed rather than heavy slugging. Hammer weighs only 20 oz and measures 6 in. long, consumes only 6.5 cfm of air at 90 psi and can be operated all day with one hand. Kit also contains special paint scraper, scaling tool, routing chisel, flat chisel, and offset flat chisel, all packed in steel box. **Superior Pneumatic & Mfg., Inc., 13800 Enterprise Ave., Cleveland 35, Ohio.**

Write No. 21 on Information Card—Page 32

### Platform Access Ladders Come in Five Styles



Custom-made yet moderately priced platform access metal ladders are made in five different styles and will accommodate platforms up to 15 feet in height. Customer merely selects style and material and specifies his platform height. Sloping ladders recommended where floor areas are large enough, slant 15 degrees from vertical and come with flat horizontal treads and hand rails. Vertical ladders are available for smaller floor areas. All ladders are provided with cast, flat treads, 3 in. deep, with non-skid surfaces. Steps are 19 or 26 in. wide. Flanges at ladder ends permit bolting or welding to floor and platform. Frames are of 1.900 in. O.D. tubing, in either galvanized cast iron, cast bronze or fabricated stainless steel. **Perma, Inc., 12 Paulding St., Pleasantville, N.Y.**

Write No. 22 on Information Card—Page 32







# 395 MILLION MILES AGO

**. . . Republic Stainless Steel  
flashed into the Van Allen belts  
with Explorer I**

On January 31, 1958, at 10:48 PM, EST, America's first satellite was hurled into orbit from Cape Canaveral, Florida, by the U.S. Army. Explorer I is still orbiting. It has produced the most important space discovery to date—the Van Allen belts of radiation.

Explorer I's nose cone was fabricated from Republic Stainless Steel, Type 430, by the Lodge and Shipley Company, Cincinnati, Ohio. They used the Floturn Process to produce specified deviations in wall thickness.

Much has happened at Republic Steel since the launching of Explorer I. Republic has the *largest capacity for production* of vacuum melted metals . . . is the *largest producer* of steel for cold extrusion and cold heading . . . the *only source* for complete line of stainless sheets up to 60" wide . . . a *new source* for complete line of PH Stainless Steels.

Today—three years later—Republic continues to be the world's largest producer of stainless and alloy steels.



## REPUBLIC STEEL

Cleveland 1, Ohio

**World's Leading Producer  
of Space Age Metals**



**Strong, Modern, Dependable**

## Products

### Fasteners Have Double Fatigue Strength



Tension fasteners for critical high strength industrial applications are said to have twice the fatigue strength of their standard counterparts. Basically socket head cap screws in configuration and dimensions, high-fatigue fasteners fill a void in the fastener spectrum between standard aircraft and missiles superbolts and

standard industrial fasteners. Fasteners are heat treated to a stress level of 160,000 psi minimum, Rockwell hardness 36-40. They have a minimum shear strength in the shank of 95,000 psi. Standard Pressed Steel Co., Jenkintown, Pa.

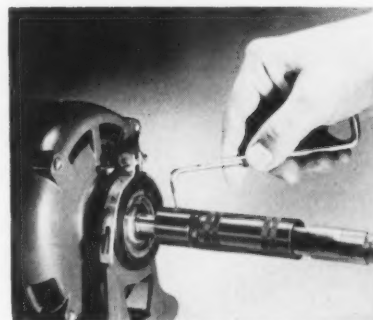
Write No. 23 on Information Card—Page 32

### Four-Ply Tape Doubles Bag Impact Resistance

A four-ply kraft tape closure doubles the impact resistance of sewn-end multiwall bags. Closure tape minimizes bag breakage at sewing line, where 70% of all failures are said to occur. Closure consists of a piece of kraft tape, the edges of which have been folded under the sewing line with the needle passing through four layers of tape instead of two. In addition, inward fold of tape further cushions sewing line against sudden shock. Multiwall Bag Div., West Virginia Pulp and Paper Co., 230 Park Ave., New York 17, N. Y.

Write No. 24 on Information Card—Page 32

### Flexible Shaft Package Available Off the Shelf



A complete flexible shaft package—shaft, neoprene-covered casing, standardized coupling—is now available off the shelf, in shaft sizes from 0.150 in. to 0.500 in. Shafts can be used conveniently and economically to test experimental designs or to meet limited requirements. They are suitable for power transmission or remote control, and are designed for high speed and continuous operation. S. S. White Industrial Div., 10 E. 40th St., New York 16, N. Y.

Write No. 25 on Information Card—Page 32

motors like these  
help your product  
**STAY AHEAD**  
of competition...

Lamb Electric works in so many fields—where motors that have vastly different jobs to do are sold to vastly different markets—that experience gained in one field often helps solve problems in other fields.

For example, we are able to incorporate in motors for appliances, portable electric tools, and similar products, developments that came about in research and engineering work on military and other precision motors.

This broad experience—available to all of our customers—is one way in which Lamb Electric special application motors can help your product stay ahead of competition.

Let us demonstrate the value of this experience in bringing to *your customers* improved products and to *you* more business and better profits.

# Lamb Electric

SPECIAL APPLICATION  
FRACTIONAL HORSEPOWER

## MOTORS

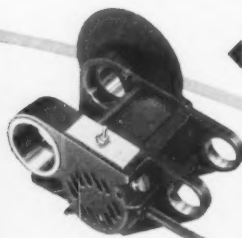
THE LAMB ELECTRIC COMPANY • KENT, OHIO

A Division of American Machine and Metals, Inc.

In Canada: Lamb Electric—Division of Sangamo Company Ltd.—Leaside, Ont.

For More Facts Write No. 207 on Information Card—Page 32

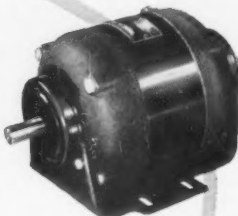
Lamb® three-stage gearmotor incorporates special brackets, reversing switch and connecting cord for pipe threader. Frame 4½ x 2½



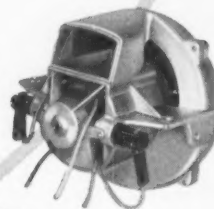
Lamb® four-pole split phase motor with resilient cradle base for business machines. Frame 4½ x 2½



Lamb® 110 Volt DC servo motor designed with maximum torque-to-inertia ratio for tape reel drive on computers. Frame 5¼ x 6



Lamb® custom-built motor and fan assembly for upright domestic vacuum cleaners



Write for your copy...  
8-page folder describes these and other Lamb Electric motors.





# INDUSTRIAL RETAINING RING PRICES REDUCED UP TO 51%



Series 1000, Series 3000 and Series 3100 Industrial Retaining Ring prices—in quantities up to 100,000—have been greatly reduced.

Thanks to modern, efficient production methods you can now get these Industrial Retaining Rings—either pre-stacked or bulk packed—at new, low prices . . . and pay less for pre-stacked rings than you have been paying for bulk packed. Reductions apply to standard materials and finishes.

Use this coupon to send for your new, revised IRR Price List.

## INDUSTRIAL RETAINING RING COMPANY

Please send me, free, a copy of the new 1961 IRR Price List—61P.

☐ I would also like to have your representative call.

Name  Title

Company

Address

City  Zone  State



*Originators of modern retaining ring dispensing*

## INDUSTRIAL RETAINING RING COMPANY

57 Cordier Street, Irvington 11, New Jersey

For More Facts Write No. 208 on Information Card—Page 32

For More Facts About Ad  
on Following Page Write in No. 209→

FEBRUARY 27, 1961

101



# HOT THINGS . . . COLD

The random sampling you see here is just a skimpy hint of the thousand different things that travel safely every day in St. Regis containers. In fact, it's hard to think of a product for which St. Regis® can't design the right corrugated box.

And, if you think we have designs on *your* product—you're right! We make it our business to ask for new oppor-

tunities to design boxes that give your product greatest protection at lowest cost. You may need "difficult" boxes . . . boxes with full printing . . . convertible to display units . . . or boxes that weather the weather. If the box you need doesn't exist, we'll create and test it. And it will be the sturdiest, safest box your product ever traveled in.

# ANYTHING GOES...IN A

St. Regis St. Regis St. R  
 ANY PAPER COMPANY PAPER COMPANY PAPI  
 agis St. Regis St. Regis  
 ER O COM



# THINGS...PLAYTHINGS

You can step into this imaginative world of protective packaging at any of our nation-wide plants. Each has a staff of creative design engineers, every modern production technique, and years of experience in virtually any industry you can name. Corrugated boxes for hot things, cold things—*anything*—are designed and made at these St. Regis plants:

Birmingham, Ala. • Fullerton, Calif. • Salinas, Calif. • Jacksonville, Fla. • Atlanta, Ga. • Chicago, Ill. • Dubuque, Ia. • Hagerstown, Md. • Minneapolis, Minn. • Jersey City, N.J. • Buffalo, N.Y. • Albany, N.Y. • Canton, O. • Cleveland, O. • Coshocton, O. • Newark, O. • Crafton, Pa. • Mt. Wolf, Pa. • Pittsburgh, Pa. • Dallas, Texas • Garland, Texas • Houston, Texas • Tacoma, Wash. • Grafton, W. Va. • Milwaukee, Wis. Or write: Container Div., St. Regis Paper Company, 150 E. 42 St., N.Y. 17, N.Y.

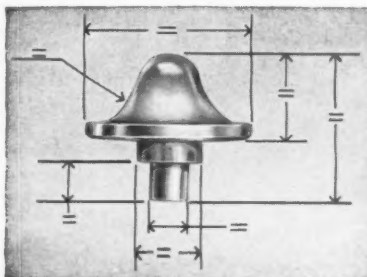
# ST. REGIS CONTAINER





Manufacturers of  
Cold Headed  
Fasteners  
Since 1888

OVER **10** TIMES  
THE RATE  
AT **50%** SAVING  
IN RAW MATERIAL



Another example of how  
Hubbell Cold Heading  
produces Better Parts at  
Faster Speeds, at Lower Cost

#### THE PART:

Click Button

#### THE MATERIAL:

Brass

#### THE METHOD:

Hubbell cold heading in place of screw machining.

#### THE RESULT:

This brass click button was machined previously from bar stock, involving several different operations that removed nearly 50% of the total weight of the original stock . . . a wasteful, time-consuming, costly process.

Hubbell now produces essentially the same part at tremendous savings in time and material cost.

a. Production is increased from the original rate of 5.5 pcs. p.m. to cold heading rate of 60 pcs. p.m.

b. Labor, overhead and material cost has been reduced 36%.

c. The finished part is stronger, more accurate, with greater uniformity.

Hubbell Cold Heading may provide equally dramatic results for you. Whether it is presently cold headed or not, send blueprint of part or sample for analysis and estimate.

HARVEY HUBBELL, Inc. Machine Screw Dept.  
Bridgeport 2, Connecticut

Kindly estimate on the enclosed  
sample (blueprint) Quantity \_\_\_\_\_

Name \_\_\_\_\_

Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

For More Facts Write No. 210  
on Information Card—Page 32

## Products

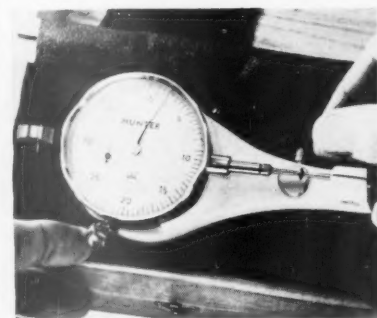
### Wear Strip Helps Conveying Machinery



A self-lubricating wood wear strip is ideal for trouble-free operation of conveying machinery. Material reduces friction, increases operating speeds and eliminates tie-ups in production caused by jamming. Strip comes in many lengths and thicknesses. It may be bored counterbored, slotted, grooved, tapped, or rabbited to conform with mounting specifications. Paramount Oilless Bearing Co., Inc., 99 Hope Ave., Worcester, Mass.

Write No. 26 on Information Card—Page 32

### Bench Micrometer Speeds Small Parts Checking



A precision bench micrometer provides faster, accurate measurement of subminiature and micro-miniature parts. Measurements can be read down to  $\frac{1}{2}$  thousandths of an in. and estimated down to  $\frac{1}{4}$  thousandths of an in. Micrometer will check parts from 0 to  $\frac{1}{2}$  in., and as many as 10 or 20 microparts can be checked per minute. R. N. Hunter Sales Co., Inc., 9851 Alburts Ave., Santa Fe Springs, Calif.

Write No. 27 on Information Card—Page 32

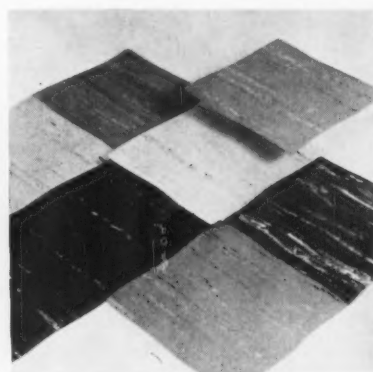
### Packaged Pipe Fittings Save Time, Help Control



"Packaged-protected" fittings can reduce costs for OEM manufacturers using malleable pipe fittings, plugs, nipples, etc. Most types and sizes of fittings, black and galvanized, are available in easy-to-handle, easy-to-identify individual cartons. System saves manhours in receiving, storage and assembly, as well as providing better inventory and purchasing control. Grabler Mfg. Co., 6565 Broadway, Cleveland, Ohio.

Write No. 52 on Information Card—Page 32

### New Floor Tile Combines Durability with Economy



A high-style economically priced tile is said to be twice as durable as asphalt. Distinctive binder ingredient makes tile highly resistant to alkali, grease and oils; easier to clean, flame-retardant and more flexible for simple application. Line includes 37 colors. A major advantage is that tile can be installed on below-grade concrete surfaces where condensation prevents use of other types of composition tile. Mastic Div., The Ruberoid Co., 500 Fifth Ave., New York, N. Y.

Write No. 53 on Information Card—Page 32



Economy-minded Purchasing Agents confirm the

# OK in OaKite

when they look for cleaning economies



There are many places, many ways to economize on cleaning... if you help yourself to the expert in-plant service offered by your local Oakite Technical Representative.

Maybe he'll find a way to reduce per-unit production costs on your metal-fabricating prepaint treatment. Or, perhaps discover a manual or mechanized method to save you money on such diverse operations as cafeteria sanitation, paint stripping, spray booth maintenance, cleaning aluminum, washing floors. He has a wide variety of compounds.

They are designed to give you highest quality production and maintenance cleaning at the lowest possible cost.

The Oakite man looks to reduce your inventory through consolidation of materials where possible. He recommends using most efficient materials... and time and cost-saving methods where not now used. In short, if there are economies to be found, he's a good man to ferret them out. Ask Oakite.

Oakite Products, Inc., 54 Rector Street, New York 6, N. Y.

#### IT'S GOOD PURCHASING POLICY TO ASK OAKITE ABOUT:

- |                                 |                                     |
|---------------------------------|-------------------------------------|
| • Aluminum Cleaners, Etchants   | • Barrel Finishing Compounds        |
| • Cafeteria Sanitation          | • Chemical Sterilization            |
| • Coach Washing Compounds       | • Conversion Coatings               |
| • Descalants; Derustants        | • Electrocleaners                   |
| • Hot Tank Cleaners             | • In-Place Cleaning Heat Exchangers |
| • Paint Strippers               | • Plant Maintenance Cleaning        |
| • Prepaint Phosphate Treatment  | • Spray Booth Maintenance           |
| • Steam-Detergent Cleaning Guns | • other Mechanized Cleaning Methods |



For More Facts Write No. 211 on Information Card—Page 32

For More Facts About Ad  
on Following Page Write in No. 212→



## Roll forming shapes like these is like automating a stamping plant...

"We think of these bins full of roll formed samples as *idea material*," Lou Colleran, Vice President-Sales explains. "Roll forming has limitations, of course, but it cuts out a lot of individual handling, punching, notching, drilling and embossing operations. *Not only can we roll a complex shape—we can pre-notch, pre-punch, and roll in lines, designs and decorations, all at the same time, in a single efficient forming operation.*" This, briefly, is the story of Roll Formed Products Co.

They work mostly with steel which is supplied by J&L in a variety of metallurgical grades, gauges and

widths to meet the needs of a long list of customers.

Manufacturers of appliances, automobile parts, hardware, office furniture, metal partitions, electrical apparatus, business machines, shelving, and construction materials all save time and money by utilizing roll formed shapes.

Steel is basic to virtually all these roll formed products, and J&L consistently supplies the right steel in the right quantity at the right time. J&L can do the same for you.

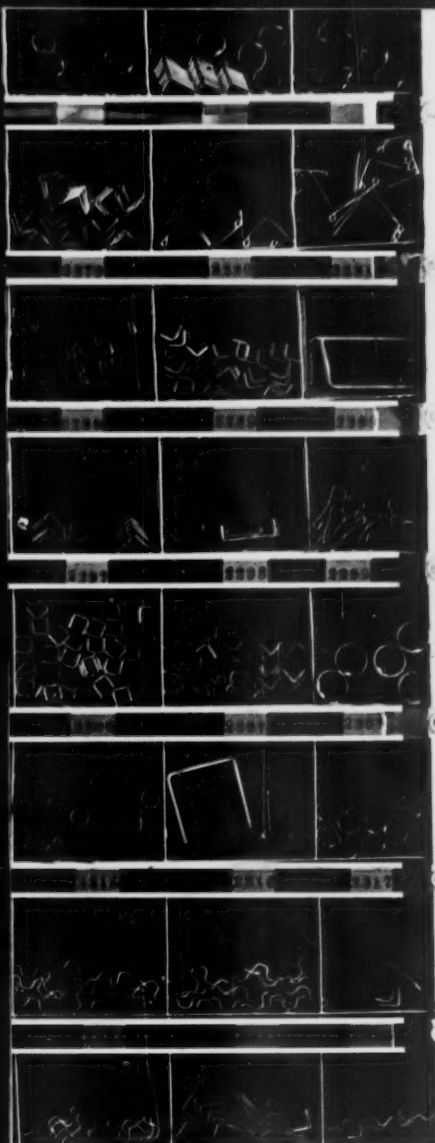
Ask your J&L representative to give you the facts.



**Jones & Laughlin Steel Corporation**  
3 Gateway Center, Pittsburgh 30, Pennsylvania

This Steelmark identifies products made of steel. Place this mark on your products. And—look for it when you buy.





▲ **Thousands of roll formed shapes** are created by Roll Formed Products Co., Youngstown, Ohio, for use by appliance, automobile, hardware, office furniture, and construction materials manufacturers, and many others.

**Roll Forming** is a highly specialized art. ▶ In one continuous operation, the coil of steel passes through a series of rolls, is formed, notched, punched, cut to length, then stacked for transport to loading and shipping area.



# Solid Platinum Anode Performance at 1/10th the Cost

## PLATANUM<sup>®</sup> ANODES

PLATANUM ANODES, made from titanium mesh coated with a uniform thickness of platinum by the PLATANEX<sup>®</sup> Plating Process, are equal functionally to solid platinum anodes yet cost less than 1/10th as much.

Thanks to a unique diamond configuration design, PLATANUM ANODES give maximum anode area while cutting down over-all size 50% or more.

PLATANUM ANODES are recommended for a wide range of electrolytic operations—from electroplating to refining or chemical processing—wherever insoluble anodes are indicated.

We're in full production and can offer immediate shipment of PLATANUM ANODES in practically any size or quantity required.

Our technical bulletin PLT-1 gives details and price information.

\*Trademark, patent applied for.



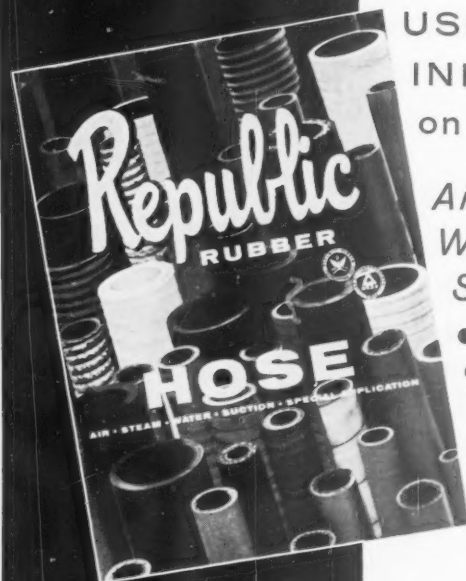
**SEL-REX CORPORATION**

NUTLEY 10, NEW JERSEY

*The world's largest selling precious metal electroplating processes*

For More Facts Write No. 213 on Information Card—Page 32

*for the asking...*



*Send for your copy today!*

**36 PAGES OF  
USEFUL  
INFORMATION  
on Rubber Hose**

**Air • Steam •  
Water • Suction •  
Specials**

- Includes do's and don'ts for longer life; reference tables; how to apply couplings; other tips; information and illustrations on all types of hose.

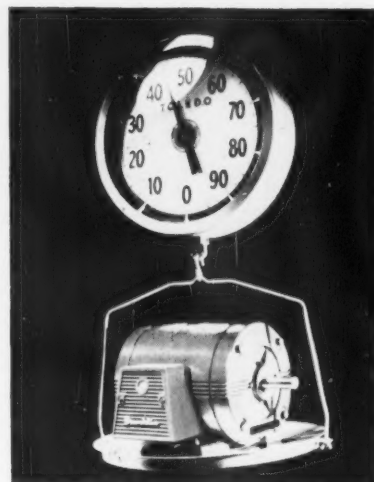


**REPUBLIC RUBBER DIVISION**  
THE RUBBER & THE CORPORATION PRODUCTS AND SERVICES  
**INDUSTRIAL RUBBER PRODUCTS**

For More Facts Write No. 214 on Information Card—Page 32

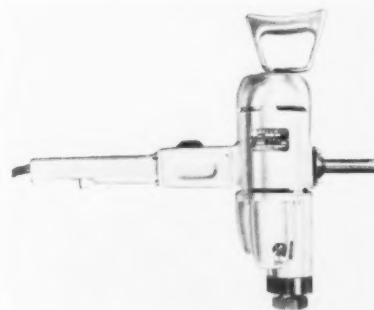
## Products

### Aluminum Motor Cuts Weight Up to 30%



A standard integral hp motor features extreme light weight. Aluminum alloys are incorporated in place of conventional cast-iron construction, providing weight reduction of up to 30% and greater structural strength. Other advantages of aluminum construction include improved heat transfer for cooler running, and maximum resistance to rust and corrosion. Motors are available in both single and polyphase. NEMA frame sizes are identical on both single-phase and polyphase motors on rating-for-rating basis. **Franklin Electric Co., Inc., Bluffton, Ind.**  
Write No. 28 on Information Card—Page 32

### Two-Speed Drill Gives Variety of Operations



A two-speed reversible heavy-duty drill permits a wide variety of operations. Ball bearing 1 1/4 in. drill is equipped with synchro-  
(Please turn to page 110)

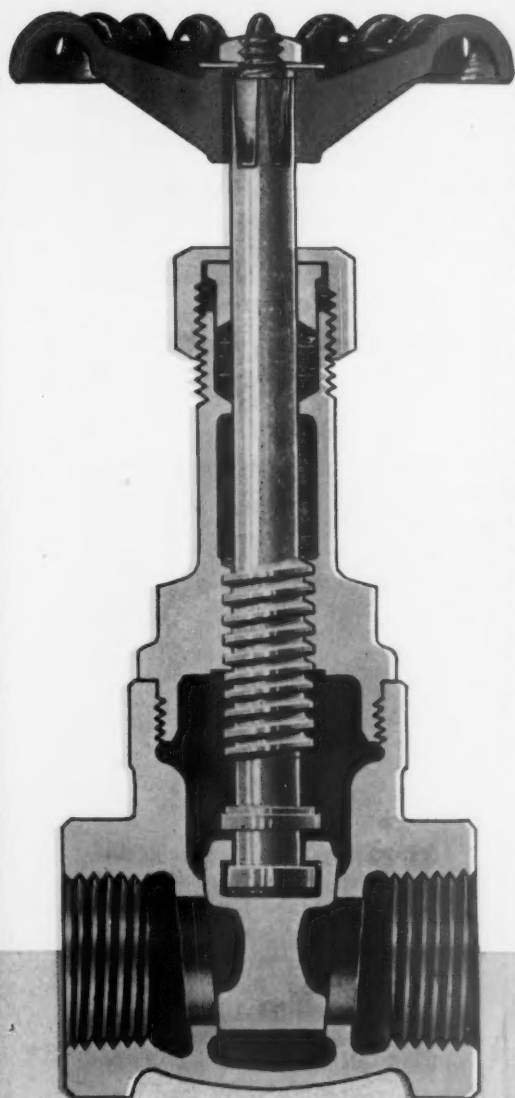
For More Facts About Ad  
on Facing Page Write in No. 215→



STEAM — WATER — OIL — GAS

# QUALITY BUILT INSIDE...OUTSIDE

## Williams Bronze Valves



Engineers who have the responsibility for the control of liquids or steam in their plants, specify Williams bronze valves. Reason—dependability.

And the inherent dependability of D. T. Williams valves is because of the extreme quality control measures used by the American-Standard® Controls Division. Quality begins with materials—extends through all manufacturing operations.

The Williams line is broader than ever with the seven new valves announced in the last year. All of them have been designed to resist distortion, and withstand piping and pressure strains. See them at your Williams wholesaler, or write American-Standard Controls Division, 5900 Trumbull Avenue, Detroit 8, Michigan.



American-Standard and Standard® are trademarks of American Radiator & Standard Sanitary Corporation.



# AMERICAN-Standard

CONTROLS DIVISION

Figs. 1253 and 1254—"Fed-Stan" rising stem gate valves. Screwed bonnet. Bronze tapered solid disc, integral seat. Meet Federal Specs. WW-V-54, Type II, Classes A and B, respectively. Screw ends—125 lb. (Fig. 1253) and 150 lb. (Fig. 1254) S.P. Sizes, 1/4"–3".



Figs. 129 and 976—Rising stem gate valves. Union bonnet. Bronze tapered solid disc, integral seat. Screw ends—200 lb. (Fig. 129) and 300 lb. (Fig. 976) S.P. Sizes, 1/4"–3".



Fig. 50—Globe valve. Meets Federal Specs. WW-V-51, Class A, Type 1. Renewable bronze disc, integral seat, 125 lbs. S.P. and non-shock water, oil or gas to 200 lbs. at 150° F. Sizes, 1/4"–3".



Fig. 1308—Rising stem gate valve. Union bonnet. Bronze tapered solid disc, integral seat. Screw ends—150 lb. S.P. Sizes, 1/4"–3".



Fig. 65—Swing check valve. Screwed cap. Renewable bronze disc, integral seat. Screw ends—125 lb. S.P. Sizes, 1/4"–3".

**Stack  
'em...**

**Move  
'em...**

**Stock  
'em...**

**in  
Quantity**

## on Faultless Casters

Eliminate costly, one-at-a-time handling methods with Faultless Casters! Parts—even heavy ones—can be stacked high on Faultless Casters, ready for further processing. Fully loaded Faultless Castered trucks, carts, dollies, racks roll easily, smoothly . . . carrying your products from machine to machine, around corners, down narrow aisles, even outdoors. And products stocked on Faultless Castered equipment require minimum rehandling for packaging, or shipping. Faultless engineers a complete line of precision casters to meet your specific requirements.

**ASK YOUR DISTRIBUTOR:** Your nearby Faultless Industrial Distributor and the local Faultless Sales Engineer will work with you to eliminate costly one-at-a-time handling methods at your plant.



Casters illustrated are typical of complete range of load capacities and types available for every materials handling job.

**NOELTING**  
**Faultless Caster Corporation**  
Evansville 7, Indiana

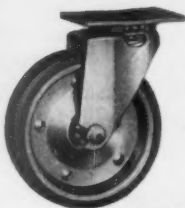
Branch Offices in principal cities; see the Yellow Pages of the telephone book under "Casters." Canada: Stratford, Ontario

For More Facts Write No. 216 on Information Card—Page 32

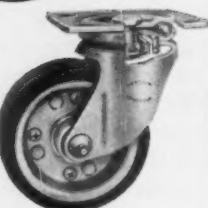
GENERAL  
DUTY  
SERIES  
100  
CASTER



LIGHT  
DUTY  
SERIES  
400  
CASTER



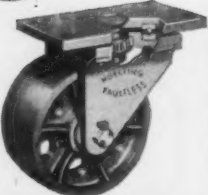
MEDIUM  
DUTY  
SERIES  
1900  
CASTER



HEAVY  
DUTY  
SERIES  
H900  
CASTER



EXTRA  
HEAVY  
DUTY  
SERIES  
1300  
CASTER



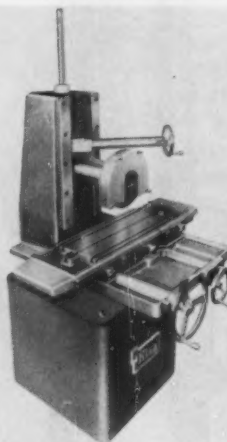
## Products

(Continued from page 108)

mesh transmission which instantly changes spindle speed, even while tool is operating, from 500 to 250 rpm at no load. Two-speed feature is useful in many operations including drilling of holes from 1/2 in. up to 1 1/4 in. Higher speed used with smaller drill bit provides correct and practical speed for pilot holes, after which larger bit is inserted and used at lower speed. Drill has full power in either forward or reverse operation. It can be used for operating speed reducers, hoists, elevators and similar basic power operations. **Black & Decker Mfg. Co., Towson 4, Md.**

Write No. 29 on Information Card—Page 32

## Grinder Features High Capacity, Low Cost

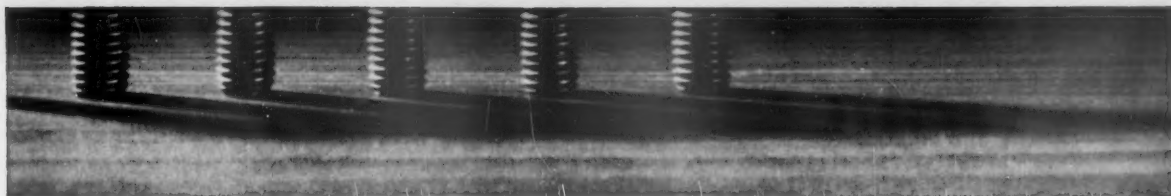


A manual-control surface grinder features extra capacity and low cost. Intended for either wet or dry grinding, unit has longitudinal table travel of 20 in. and a 14 in. cross feed. Grinding wheel diameter of 12 in. allows a 15 in. vertical clearance over table. Tee-slotted table travels on precision-ground ways and has adjustable stops. It has 10 x 20 in. working surface when used for wet grinding. Grinder has direct-drive spindle, rotating on 1 1/2 hp balanced motor. Magnetic chucks and other accessories are available. **King Machine & Mfg. Co., 1171 E. 32nd St., Los Angeles 11, Calif.**

Write No. 30 on Information Card—Page 32



## ***Heads for \$50 saving per unit***



### **Fastener survey of blower units by RB&W points out where use of standard hex screws cuts costs, but not quality**

In making a survey of a well-known manufacturer's fastening operations, the RB&W man found that alloy socket head screws were used extensively in large blower units.

But he found no genuine engineering need—the alloy's strength wasn't being utilized. And he found no production need—there was no tight spacing situation that required internal wrenching. Nor was there even an *appearance* need—screws weren't being installed in countersunk holes for a flush fit.

So there was no purchasing need, either. Why pay the premium cost

for alloy fasteners? He recommended switching to *standard* high strength hex screws. The savings in fasteners per blower: 50 dollars. That's 50 dollars added to unit *profit* with no increase in price.

An RB&W Fastener Expert is no better than your engineers. He simply knows *what* to look for. Why not let him search for savings with one of *your* engineers? Maybe you're doing the best possible; but unless you're sure you're not wasting fastener dollars, it pays to consult Russell, Burdsall & Ward Bolt and Nut Company, Port Chester, N. Y.



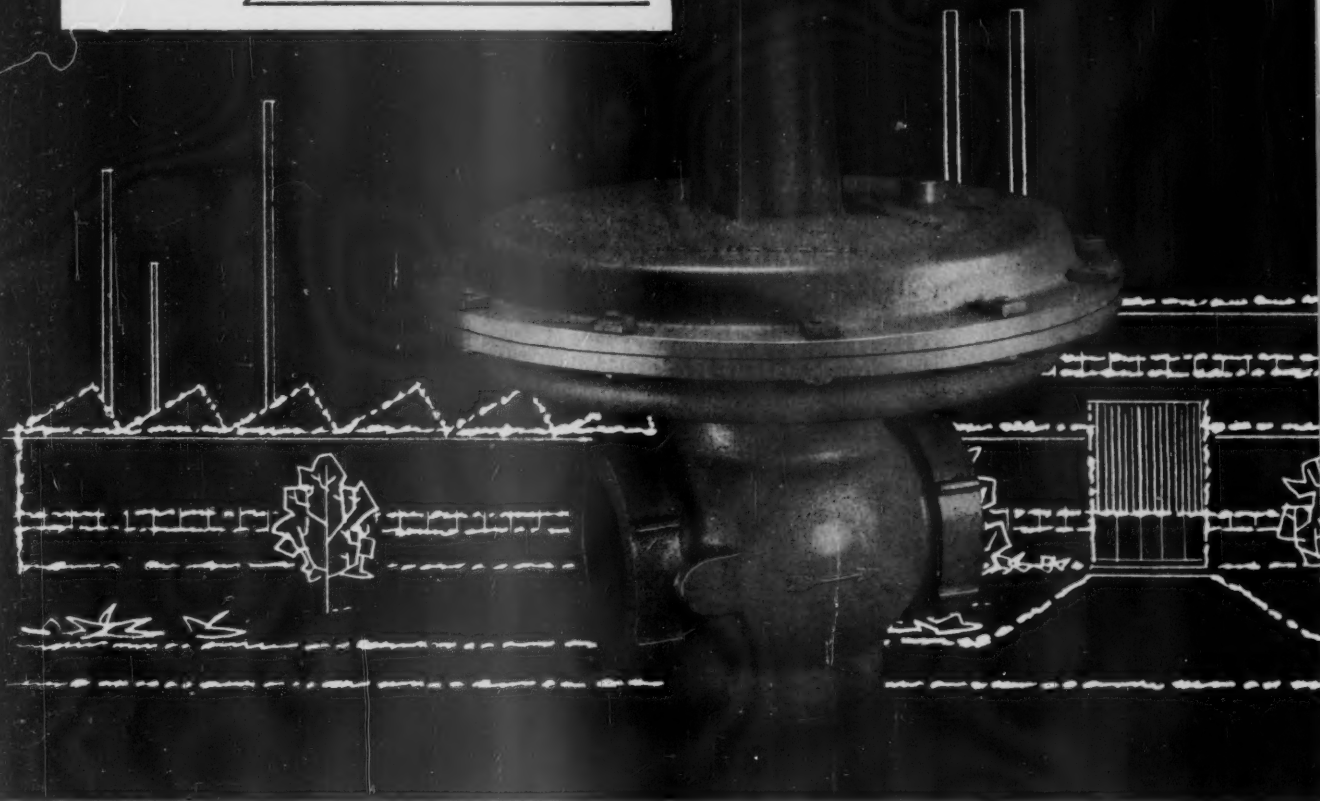
**Plants at:** Port Chester, N. Y.; Coraopolis, Pa.; Rock Falls, Ill.; Los Angeles, Calif. **Sales office and warehouse at:** San Francisco, Calif. **Sales offices at:** Ardmore (Phila.), Pa.; Pittsburgh; Detroit; Chicago; Dallas. **Sales agents at:** Cleveland; Milwaukee; New Orleans; Denver; Fargo. **Distributors coast to coast.**

For More Facts Write No. 217 on Information Card—Page 32

For More Facts About Ad  
on Following Page Write in No. 218→



Measurement / Control Ideas for cutting costs:



## The \$40.00 regulator that could have saved \$30,000.00

A gas pressure regulator like the one shown above was doing a precise job of regulating fuel gas in a glass plant—until a scaffold fell on it. Without the regulator, the entire plant was out of business. Down-time cost was about \$30,000.00.

The Rockwell Field Engineer who personally rushed another regulator to this customer pointed out that an extra stand-by regulator would cost only \$40.00—low-cost insurance against a possible \$30,000.00 loss. The customer followed this recommendation, as well as others which the Field Engineer made in the interest of more efficient handling of measurement and control functions in this plant.

There are many ways a Rockwell Field Engineer can help *you* save time, money, and material wherever gases or liquids flow through pipe in your plant. He represents the largest and most experienced manufacturer of measurement and control products—and this experience can pay off for you. New or different uses of valves or regulators can prevent waste and inefficiency. Rockwell gas and liquid meters can measure almost anything that flows through a pipe, and can often assure big savings in time and labor, while improving quality.

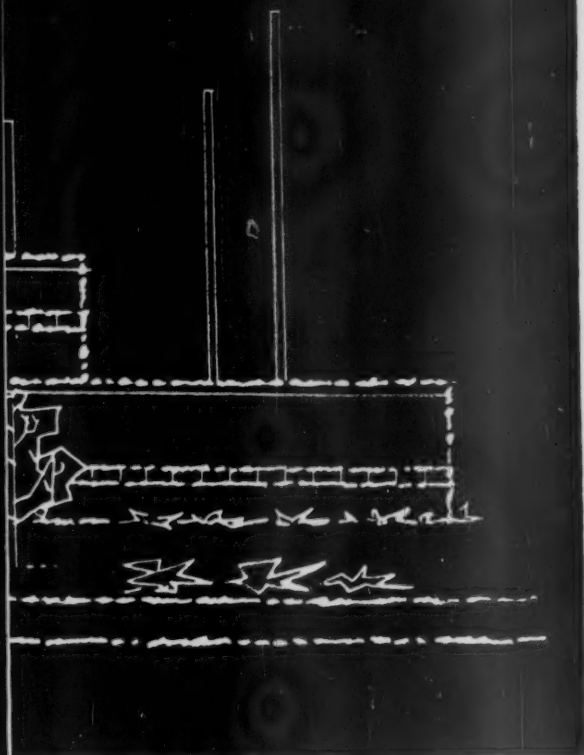
It costs nothing to talk to a Rockwell Field Engineer—simply send the coupon.

---

# ROCKWELL

The leading single source for Measurement / Control products and ideas





## HOW MUCH COULD YOU SAVE?

There is hardly a plant anywhere—including yours—where the right application of the right measurement and control methods and equipment won't produce savings many times the modest cost involved. Certainly it's worth investigating—especially since it will cost you nothing to find out. Simply mail the coupon now.

**SEND COUPON NOW!**

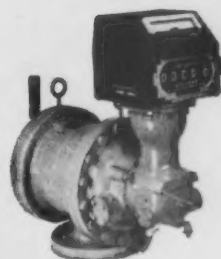
Rockwell Manufacturing Company, Dept. MC38 Pittsburgh 8, Pa.

Please send me literature as checked:

- ☐ Valving gas, liquids and slurries. Bulletin V-621
- ☐ Measuring gases. Bulletin 1085
- ☐ Regulating gas pressures. Bulletins 1044, 1059, 1082, 1086
- ☐ Measuring liquids. Bulletins P-100, PI-666, OG-400
- ☐ Condensed catalog of all products. Bulletin C-5000
- ☐ Please have your Field Engineer call.

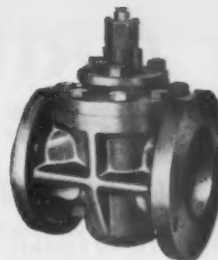
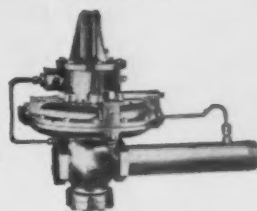
## "IN-PLANT" METERING: LIQUIDS AND GASES

"IN-PLANT" METERING can mean new cost cutting opportunities. Accurate liquid and gas meters are a positive way of improving cost control, insuring better use of materials, sharpening inventory control, and preventing waste. Whatever the need, Rockwell has the right liquid or gas meter to do the job better and at lower cost.



## CONTROLLING PIPED MATERIAL: LIQUIDS AND GASES

CONTROLLING PIPED MATERIAL more efficiently is a positive step towards cost cutting. Better valves can save wasted products and materials and often increase plant safety. Gas pressure regulators can cut costs by assuring safe, economical use of any gas used in the plant. Rockwell has the world's most complete line of flow control devices.



MEASUREMENT & CONTROL DEVICES

another fine product by

**ROCKWELL**



Name \_\_\_\_\_ Title \_\_\_\_\_

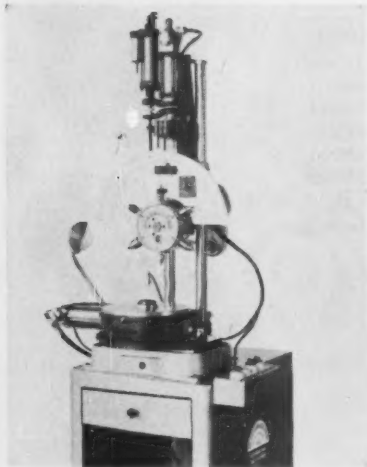
Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

## Products

### Bench Turret Drill Speeds Production

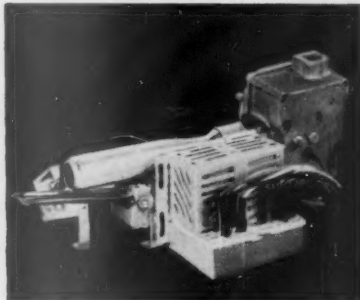


An automatic bench model 6-spindle turret drill provides automatic power feed and turret indexing. Machine sets the pace, rather than operator, increasing production. Controlled infinitely

variable power feeding with pre-selective individual spindle speeds that automatically shift ensure optimum machining efficiency, finest finish and longest tool life. Provision for manual, semi-automatic and full-automatic operation provides full flexibility. **Burgmaster Corp., 15001 S. Figueroa St., Gardena, Calif.**

Write No. 31 on Information Card—Page 32

### Spark Ignition System Replaces Pilot Flame



An automatic direct spark ignition system eliminates the need of a pilot burner and flame in a

variety of gas applications, such as clothes dryers, unit heaters, infra-red heaters and other items where draft and pilot flame failures present a problem. System provides for direct ignition of main burner gas by means of intense electric spark. Electro-magnetic type control valve assures 100% tight shut-off of gas flow. Thermally actuated electric flame detector shuts off gas in event of ignition failure and also controls and terminates spark after proving the presence of main burner flame. **Controls Co. of America, Heating & Air Conditioning Div., 2450 N. 32nd St., Milwaukee 45, Wisc.**

Write No. 32 on Information Card—Page 32

### Lower-Cost Alloy Permits Steel Savings

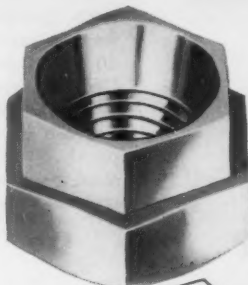
Development of a low-cost constructional alloy steel permits substantial savings in fabrication of stronger, lighter steel struc-

(Please turn to page 116)

## Use the exclusive **GRIPCO®** **CLINCH NUT**

for "fixed" fastening or  
"hard to reach" assemblies

For positive attaching of a threaded medium to thin metals. They are clinched solid for a rigid application, or staked in with a six point staking punch for a floating effect. Available with or without self-locking threads. Gripco Clinch Nuts can be clinched or staked with hydraulic or air equipment. Full details available—write for samples and NEW CATALOG today, or consult the yellow pages in your phone book under "GRIPCO" for the representative nearest you.



WITH GRIPCO FASTENERS YOU GET:

**Service** — 40 Sales representatives all over the country for prompt, fast service.

**Reliability** — Quality controlled by the oldest established lock nut manufacturer in the U.S.

**Stock** — Large inventories to ensure out of stock delivery on all catalogued items.

**GRIP NUT**  
**COMPANY**

131

Subsidiary of Heli-Coil Corporation, Danbury, Conn.

112 Maple Ave. • South Whitley, Ind. • Phone: South Whitley 723-5111

For More Facts Write No. 219 on Information Card—Page 32



Suppliers and sub-contractors in the Northern Plains can be pinpointed quickly by the Facilities Register, a unique electronic index of production facilities. Whether yours is a problem of finding new suppliers, contracting for idle machine time, shortening lines of supply, or obtaining better quality and service:

ASK THE MAN  
FROM THE  
NORTHERN  
PLAINS



**NORTHERN NATURAL GAS COMPANY**

SERVING THE NORTHERN PLAINS □ GENERAL OFFICES: OMAHA, NEBRASKA

For More Facts Write No. 220  
on Information Card—Page 32



A nationwide network of sales offices and local telephone numbers makes it possible for you to reach the H & H representative in your area promptly and with ease. And when you have a special problem calling for the

attention of the plant, a collect telephone call to VI. 2-3600 puts you in touch with Detroit almost at once. A policy such as this gives added meaning to the H & H pledge of superior service *before and after* every sale.

### **H & H TUBE AND MANUFACTURING CO.**

271 North Forman Avenue, Detroit 17, Michigan • Offices from Coast to Coast



SEAMLESS



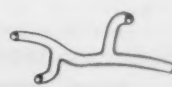
LOCKSEAM



COIL STRIP



STRAIGHT AND COILED TUBE



TUBULAR PARTS

P L A N N E D   F O R   P R E C I S I O N





## NORTH PVC CLOTHING

IT'S LIGHT,  
FLEXIBLE AND  
COMFORTABLE

When rain falls and wind howls, outdoor workers of all kinds don North PVC Wet-Weather Clothing by Jomac to keep dry and comfortable. And they move with complete freedom because of set-in sleeve design and generous cut.

Seams are shielded and electronically welded to assure leak-proof garments. PVC buttons are welded to give troublefree service.



Insist on Jomac gloves, hand guards, pads, mitts and sleeves for outstanding hand-to-shoulder protection. The loop-pile fabric is cut, abrasion, heat and wear-resistant—and washable.



Insist on North PVC gloves for better fit, greater dexterity, more comfort, longer wear, and maximum safety in handling most chemicals, oils, greases, etc.

WRITE TODAY FOR FOLDER DESCRIBING THESE  
PROTECTIVE JOMAC PRODUCTS

# JOMAC

Jomac Inc., Dept. F  
Philadelphia 38, Pa.

In Canada: James North Canada Company Ltd., Simcoe, Ont.

"JOMAC Sells Quality . . . and Quality Sells JOMAC!"

For More Facts Write No. 222 on Information Card—Page 32

## Products

(Continued on page 114)

tures and equipment. Applications include bridges, buildings, earth-moving and mining equipment, truck frames and bodies, etc. "T-1" Type A steel is available in quenched and tempered plates and bars ranging from 3/16 to 1 in. inclusive. In this thickness range, steel has 100,000 psi minimum yield strength and same high degree of toughness, weldability and resistance to impact and abrasion as previous alloys, but differences in chemical composition reduce cost significantly. Extra hardness can be provided if needed. **United States Steel Corp., 525 William Penn Place, Pittsburgh 30, Pa.**

Write No. 33 on Information Card—Page 32

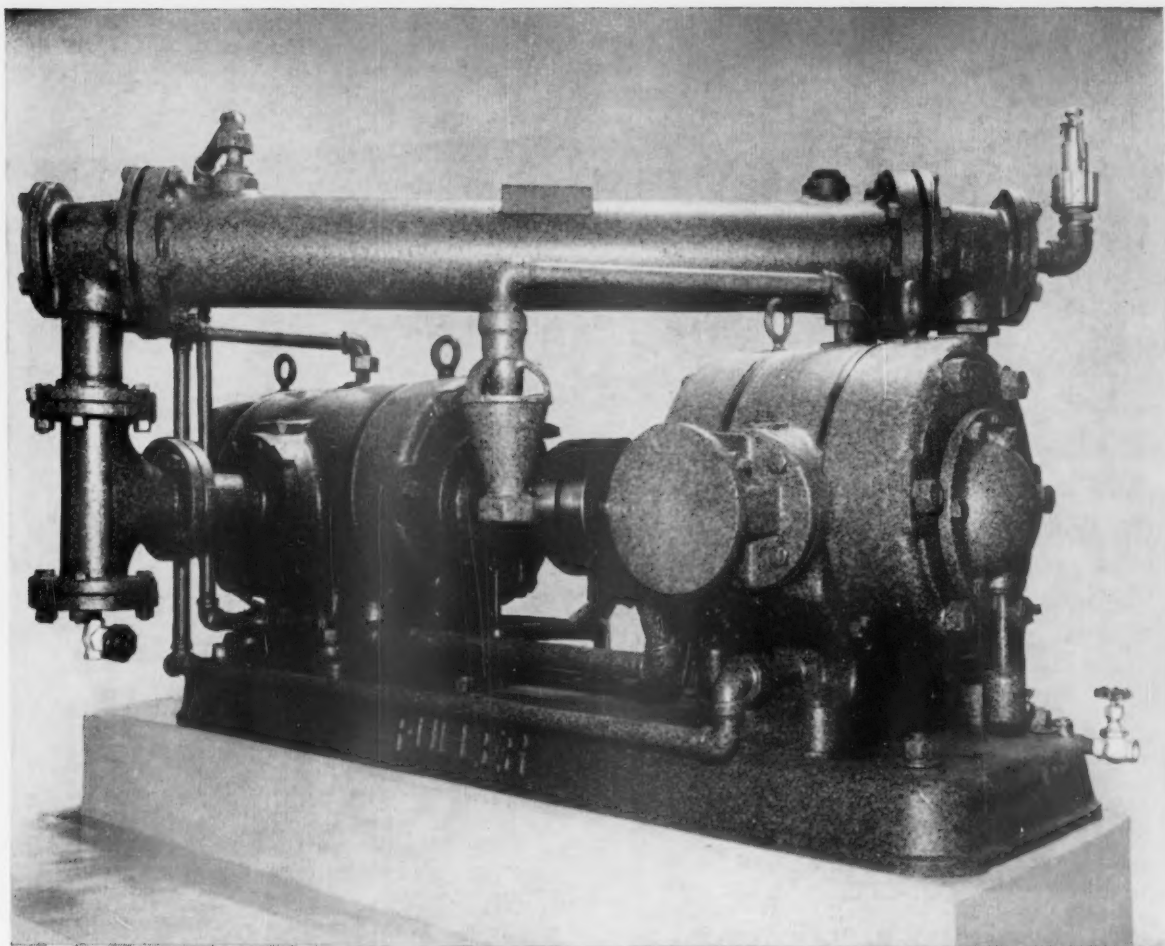
## Zoom Macroscope Gives Constant Magnification



A zoom macroscope designed for photo-interpretation features continuous magnification from 10x to 30x. Once eyepiece has been properly focused, no further adjustments are necessary to view the object at any magnifications within the limits. Even momentary loss of focus, blackout or image jump has been eliminated. Macroscope is equally effective with positive or negative transparencies as well as with photo prints. Instrument's total weight is only 12 oz. When tripod legs are folded, unit is only 7 in. long and 2 in. in diameter. When tripod legs are spread, overall length is 6 3/4 in., with 4 1/2 in. between legs. **Bausch & Lomb, Inc., Rochester 2, N. Y.**

Write No. 34 on Information Card—Page 32





## Fuller Compressors With Overhead Intercoolers Offer A New Dimension In Compactness

Fuller Rotary Two-Stage Compressors equipped with Overhead Intercoolers fill the bill where space may be a problem. These compressors produce from 30 to 3300 cfm, pressures to 125 lb. gage and can be readily installed.

These compact Rotary Compressors are vibration-free, thereby eliminating the need for involved and expensive foundations or structural modifications.

The Fuller rotary principle permits complete freedom of reciprocating parts—valves, crankshafts, pistons—cutting the need for frequent servicing and parts replacement. Minor maintenance is all the care indicated for years of serviceability.

For full details on the maintenance-free economy and high performance of Fuller rotaries, write today for comprehensive, illustrated Bulletin C-5A.

2626  
C399

See Chemical Engineering Catalog for details and specifications



### FULLER COMPANY

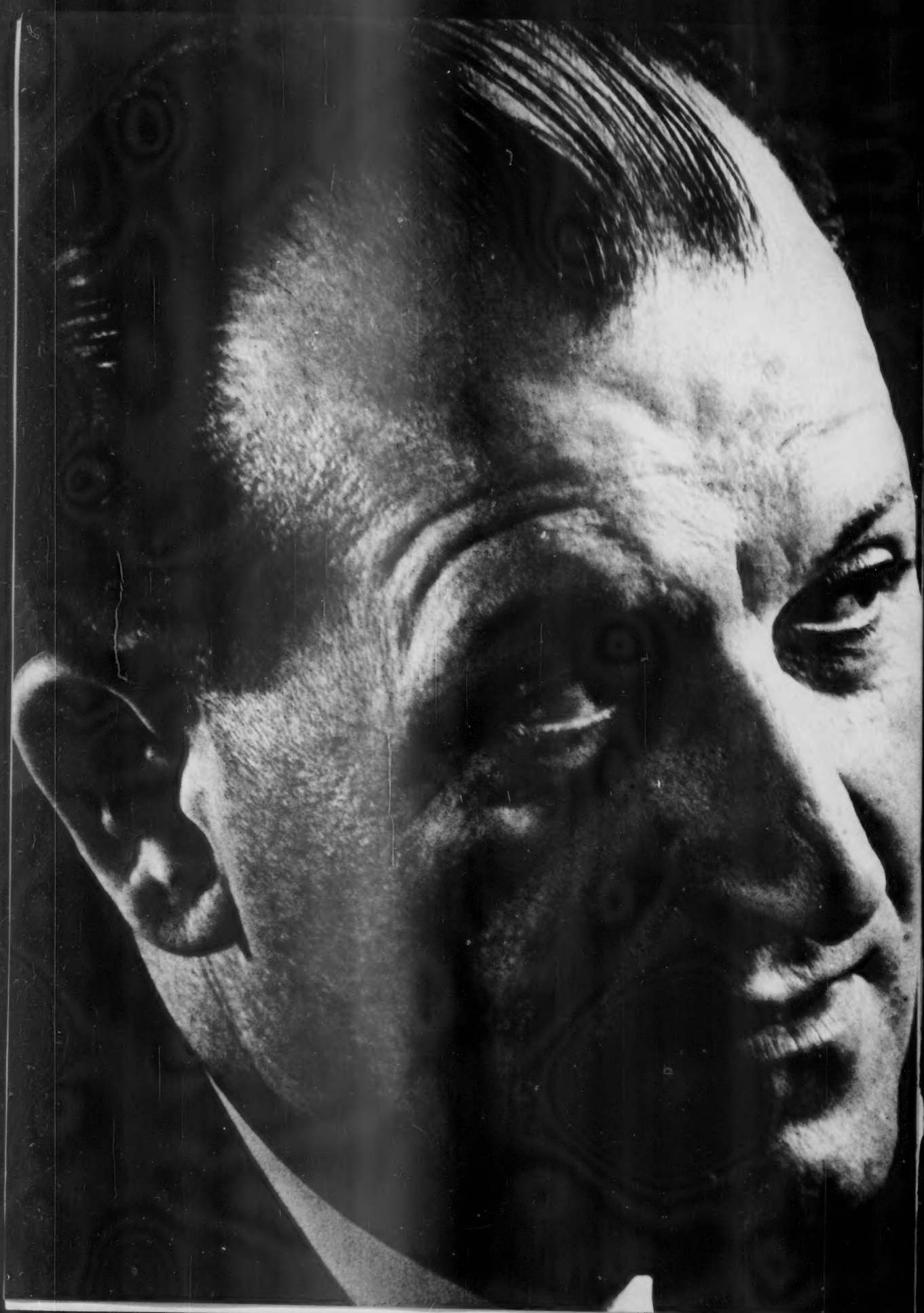
170 Bridge St., Catasauqua, Pa.

Subsidiary of General American Transportation Corporation  
Offices in Principal Cities Throughout the World

For More Facts Write No. 223 on Information Card—Page 32



For More Facts About Ad  
on Following Page Write in No. 224→



**Paul McHail,  
who directs the prompt handling  
of thousands of orders  
each month, says  
you'll like doing business  
with Columbia-Southern**

Customers' orders flowing through Columbia-Southern's Order and Service Department, directed by Paul McHail, are routed without delay to the appropriate shipping point by means of a modern, direct communications network. During their brief passage through the Department, they are checked against customers' standing specifications and given complete routing instructions by representatives of the Traffic Department. The central location of Order and Service at Columbia-Southern's Pittsburgh Headquarters provides close contact with product managers and others, making fast decisions an everyday reality.

Shipping Departments at each plant work as efficiently to carry out the instructions promptly and accurately, speeding products to users as directed.

District Sales Offices play a big part in the function, maintaining close contact with customers and serving as direct liaison between Columbia-Southern and the customer organization, promptly relaying special instructions, questions, and answers in both directions, and providing users of Columbia-Southern Chemicals with the greatest possible degree of flexibility.

This concern for doing things the customer's way explains why so many organizations, representing every industry, rely on Columbia-Southern as a primary supplier of their chemical requirements. They like Columbia-Southern's habit of giving more than just the products specified on the order form. So will you!

Anhydrous Ammonia, Barium Chemicals, Benzene Hexachloride, Calcium Chloride, Calcium Hypochlorite (Pittchlor®, Pittabs®), Carbon Tetrachloride, Caustic Potash, Caustic Soda, Chlorine, Chlorinated Benzenes, Chloro IPC, Chrome Chemicals, Hydrogen Peroxide, Muriatic Acid, Pacific Crystals, Perchlorethylene, Rubber Pigments (Calcene®, Hi-Sil®, Silene®), Soda Ash, Sodium Bicarbonate, Sodium Sulfate, Titanium Tetrachloride, Trichlorethylene



columbia | southern  
chemicals

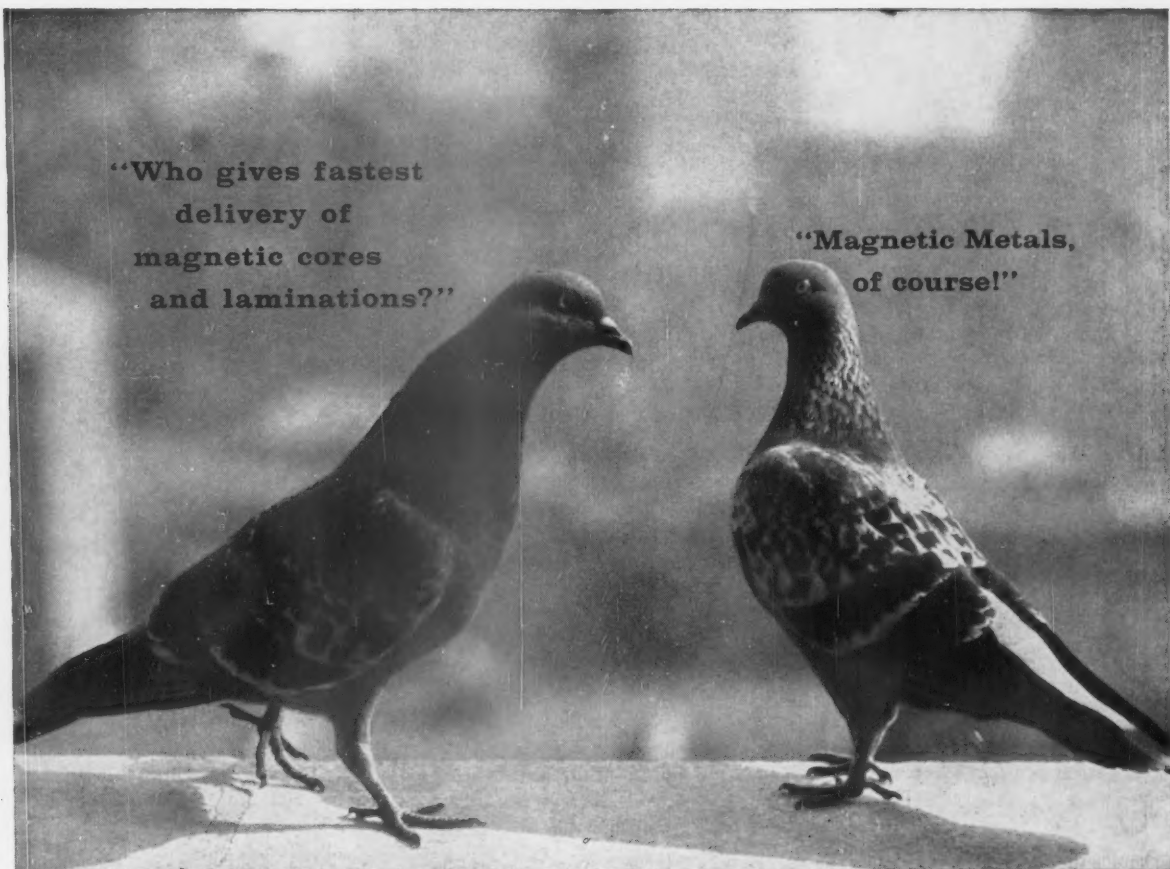
CHEMICAL DIVISION

**PITTSBURGH PLATE GLASS COMPANY**

ONE GATEWAY CENTER PITTSBURGH 22, PENNSYLVANIA

DISTRICT OFFICES: Boston • Charlotte • Chicago • Cincinnati • Cleveland  
Dallas • Houston • Minneapolis • New Orleans • New York • Philadelphia  
Pittsburgh • San Francisco • St. Louis • IN CANADA: Standard Chemical Limited





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delivery of  
magnetic cores  
and laminations?"**

**"Magnetic Metals,  
of course!"**

It's the wise bird who turns to Magnetic Metals for hurry-up service on magnetic cores and transformer laminations. Magnetic Metals keeps on hand an enormous stock of lamination dies, always ready to stamp out the laminations you need, without the delay or added expense of tooling up. And Magnetic Metals stock of magnetic alloys—largest commercial stock in the world—makes immediately available to you the widest choice of magnetic characteristics.

At both our East and West Coast plants, Centricores® and Powdered Permalloy Filtoroid® cores are stocked in all standard permeabilities and sizes for immediate shipment, and specials can be made to your specifications on short notice.

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Why not get in touch with Magnetic Metals today?

**MAGNETIC  
METALS**



**Magnetic Metals Company**

Hayes Avenue at 21st Street, Camden 1, N.J.

853 Production Place, Newport Beach, California

*transformer laminations • motor laminations • tape-wound cores  
powdered molybdenum permalloy cores • electromagnetic shields*



For More Facts Write No. 225 on Information Card—Page 32



# VALUE ANALYSIS FACT SHEET

## Formbrite Drawn Brass Parts

**How to open finishing room bottlenecks and cut polishing costs up to 50%—produce stronger, more scratch-resistant parts—and get additional savings—with Formbrite, superfine-grain drawing brass.**

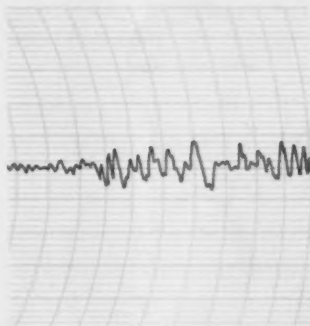
Very often in the production of drawn brass parts which are to be plated or lacquered, finishing costs are greater than those of all preceding operations—or even the cost of the metal. Under any circumstances, they are a high percentage of total costs.

Furthermore, parts go through the pressroom a lot faster than they can through the finishing room, creating bottlenecks in production.

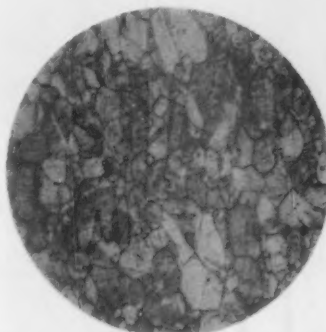
**ENLARGED SURFACE TRACES** at the right prove that you can lick both cost and time problems with Formbrite®, Anaconda superfine-grain drawing brass. Savings in polishing costs reported by users run from 40 to 50%. These are net savings, as Formbrite costs no more than ordinary drawing brass.

**STRONGER, MORE SCRATCH RESISTANT.** Formbrite is stronger, harder, springier than the usual drawing brasses in the same standard tempers, yet retains remarkable ductility for forming and drawing, and takes sharp, clean-cut ornamental die impressions. The harder surface means fewer rejects from scratching and marring during handling. In some instances, the superior strength and hardness of Formbrite make possible the use of a thinner gage metal, with an additional saving in material cost.

**SIZES AND TEMPER.** Brass manufactured by the Formbrite method, with its special characteristic of superfine-grain structure, is supplied in standard Formbrite temper, half-hard, three-quarter-hard, hard, and extra-hard

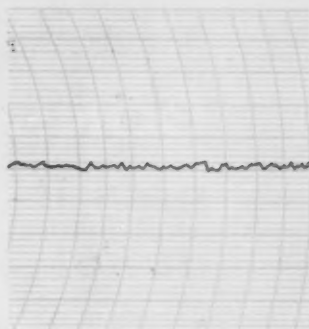


Enlarged surface trace of standard drawing brass (grain size .045 mm) after 40% elongation. This kind of roughness causes "orange peel" effect in the working of standard drawing brass. Smoothing such mountains down to the valleys takes considerable cutting.



This is the microstructure, shown 75x, of the standard drawing brass used above.

tempers, and can be rolled in heavy coils to .004" in thickness by 24" wide, weighing 100 pounds per inch of width. The table below gives physical data and terminology for Formbrite tempers.



Enlarged surface trace of Formbrite drawing brass (grain size .005 mm) after 40% elongation. Surface smoothness after deformation is the test of a drawing brass's polishing characteristics. It is relatively easy to level these little hills on the surface of Formbrite. In many cases, users find they eliminate cutting operations altogether, need only a simple color buff.



This uniform superfine-grain structure of Formbrite, shown 75x, is produced by special procedures for rolling or drawing and annealing developed by Anaconda American Brass Company.

**ALLOYS.** In addition to 70-30 brass, the following Anaconda alloys also are produced by the Formbrite method: Yellow Brass-59, Gilding Brass-4, Commercial Bronze-14, Red Brass-24, and Low Brass-32.

**TECHNICAL ASSISTANCE.** For help in selecting the alloy and temper to handle your particular job—for a copy of Publication B-39 with more details about Formbrite—see your Anaconda representative. Or write: Anaconda American Brass Company, Waterbury 20, Conn. In Canada: Anaconda American Brass Ltd., New Toronto, Ont.

### TERMINOLOGY FOR FORMBRITE TEMPER

TENSILE STRENGTH LB. SQ. IN.		ROCKWELL B HARDNESS		DESIGNATION TO BE USED
MIN.	MAX.	MIN.	MAX.	
49,000	59,000	40	65	Yellow Brass—Formbrite
57,000	67,000	60	77	Half-hard Yellow Brass—Formbrite
64,000	74,000	72	82	Three-quarter-hard Yellow Brass—Formbrite
71,000	81,000	79	86	Hard Yellow Brass—Formbrite
83,000	92,000	85	91	Extra-hard Yellow Brass—Formbrite

For More Facts Write No. 226 on Information Card—Page 32

## FORMBRITE

Superfine-grain drawing brass  
a product of

**ANACONDA®**  
Anaconda American Brass Company

# From Blueprint To Plastics Product **CONSOLIDATED** gets it done!

At Consolidated, we take the designer's concept and turn it into exciting, satisfying reality.

Consolidated has always handled the tough jobs—the special jobs that "couldn't be made from plastics." And today at Consolidated we're still pioneering—still finding new, better ways to work with newer, better materials.

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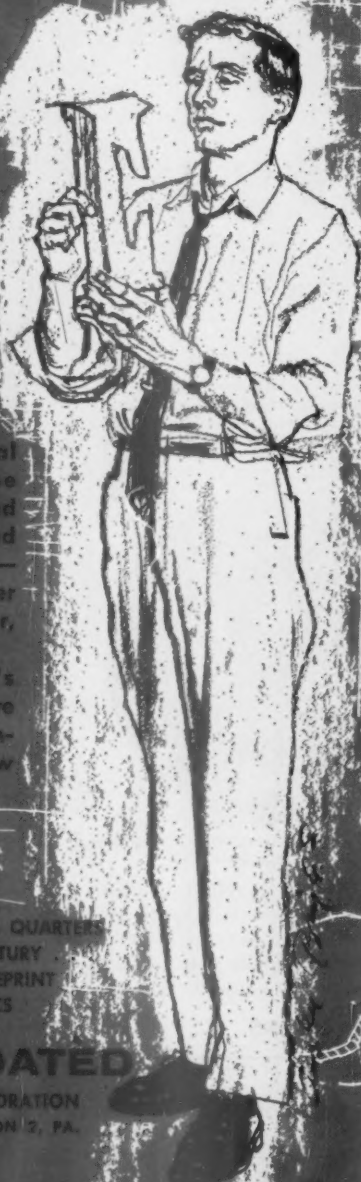


FOR THREE QUARTERS  
OF A CENTURY  
— YOUR BLUEPRINT  
IN PLASTICS

## CONSOLIDATED

HOLDEN PRODUCTS CORPORATION  
237 CHERRY STREET, SCRANTON 2, PA.

Send for your free copy of our new 20-page Facilities Report



## Products

### High-Strength Alloy Offers Many Advantages

A leaded manganese bronze alloy suitable for high quality screw machine work is available in extruded solid and hollow bar forms. Applications for high-strength, free-machining material include bushings, bearings, gears, cams, connecting rods, valve stems, etc. Compared to cast bearing bronzes, alloy offers these advantages: close extruded tolerances, reducing machine scrap; no hidden porosity; tensile strength of 75,000 psi; 8% lighter weight; corrosion resistance superior to copper-tin and copper-tin-lead alloys. Material possesses good hot working properties and can be forged if closer size tolerances and higher physical properties are required. **Ampco Metal, Inc., Box 2004, Milwaukee 1, Wis.**

Write No. 35 on Information Card—Page 32

### Teflon Produced In Large Sheets



Teflon is now available in 16 sq. ft. sheets, in a wide variety of thicknesses. Sheets are totally unaffected by almost every known chemical, including the most violent corrosives, and provide an extremely low coefficient of friction. They are practically perfect dielectric materials and are rated for continuous use at 500 deg F. Sealing properties are outstanding, and excellent seals, gaskets, plugs, liners and packings can be cut from them. **Fluoro-Plastics, Inc., 3619 Filbert St., Philadelphia 1, Pa.**

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For More Facts Write No. 227 on Information Card—Page 32

For More Facts About Ad  
on Facing Page Write in No. 228→

**Land Giant**



**Sea Giant**



## **When reliable welding comes first so do M&T Murex Electrodes**

THAT HUGE TRACTOR is a mountain of earth-moving muscle capable of 67,000 pounds of pull. An average tractor is dwarfed by this monster: 23 feet long and weighing over 75,000 pounds with equipment. On its seven-roller tracks, it can claw into the earth, push huge boulders, maul tons of dirt.

THE PRINCESS SOPHIE is just as much a giant of the sea lanes. When loaded, it displaces 100,000 tons—more than any passenger or military ship afloat. The latest electronic equipment, a foam fire-protection system, a complete hospital and air-conditioned quarters make it one of the safest, most luxurious supertankers ever.

Another interesting fact about these two giants: both obtained the proper joint strength through welding with M&T Murex electrodes. It's interesting, but not unusual. You'll find that this brand is increasingly in evidence at demanding jobs everywhere. It represents one of the broadest lines in the industry: over 1000 types and sizes for virtually any type of application—as advantageous on the routine jobs as on the extraordinary ones.

To get the whole story on this outstanding line, call in your M&T welding specialist. Or write for your copy of the helpful M&T Murex Electrode Selector.



**welding products • plating products  
minerals • coatings • chemicals • detinning**

METAL & THERMIT CORPORATION, General Offices: Rahway, New Jersey



For fast  
sheet delivery  
in the  
Midwest!



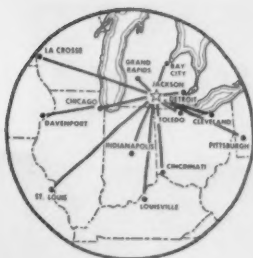
# ALUMIN

**THE DOW METAL PRODUCTS COMPANY**

*Division of The Dow Chemical Company*

For More Facts Write No. 229 on Information Card—Page 32





## New source . . . personal service

NOW—get personalized service on custom rolled sheet from Dow's modern Jackson (Michigan) plant—formerly a facility of the Sheet Aluminum Corporation, with 35 years of sheet rolling experience. The plant's experienced operating staff gives personal attention to all orders . . . and fast delivery in the Midwest!

This new Dow plant produces aluminum coil and flat sheet, in alloys 1100, 3003, 5005, 5050, 5052, 5357, 5457, 5557. Typical commodity items are residential siding sheet, lamp base stock, weatherstrip, fin stock, and building sheet.

The centralized location of this new aluminum source means short transit times to customers in the area shown on the map above. And quick in-plant order handling adds up to short order-to-delivery time.

Send for it! There's a wealth of information in Dow's new Aluminum Mill Products data book . . . important details on alloys, sheet sizes, and facilities. Write today for a copy. The Dow Metal Products Company, Midland, Michigan, Merchandising Dept. 1105EE2-27.

# U M

## Products

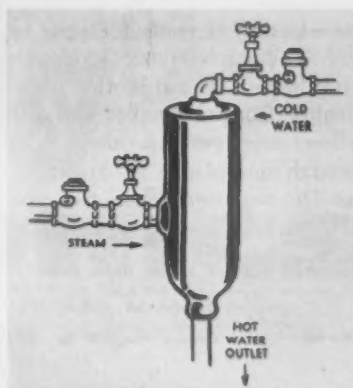
### Cordless Motors Provide Accurate Constant Speed



A series of chronometrically governed d-c motors provides high accuracy and long life at constant speed, independent of load, line and temperature variations. Motors measure  $1\frac{3}{4} \times 2\frac{1}{2} \times \frac{1}{2}$  in. and weigh 3 oz. Windings for operation on voltages from 0.5 to 12 volts d-c can be supplied. Now used to drive cordless electric clock and chart drive with timing cycle of 192 hours, they are ideal for applications requiring high accuracy and low current drain, such as operating contacts, cams and actuators where loads are larger and vary over greater limits than escapement type can handle. The 1.5 volt motor operates for more than two years on standard flashlight battery. A. W. Haydon Co., Waterbury, Conn.

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### Steam-Water Mixer Gives Instant Hot Water

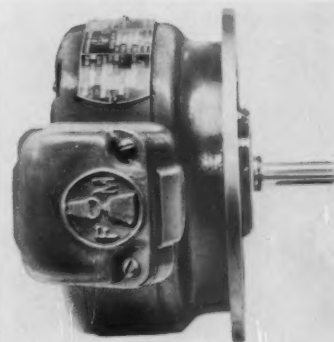


A direct diffusion steam and water mixer provides instant-

aneous hot water without tank or heater. Mixer is hooked up to cold water and steam lines. Steam mixes directly with cold water, heating it to required temperature. No return system is necessary. Steam is used only when hot water is drawn. Unit is ideal for isolated washrooms where steam is available but hot water would have to be piped a long distance. Mixer can be used as booster heater in connection with dishwashing, sterilization or degreasing, etc., or as a pre-heater for chemical solutions in process applications and for plastic extrudings. Two models, in stainless steel, bronze and other alloys. Conant Bros. Co., 427 Riverside Ave., Medford 55, Mass.

Write No. 38 on Information Card—Page 32

### Pancake Type Motor Has Low Inertia, Fast Pickup



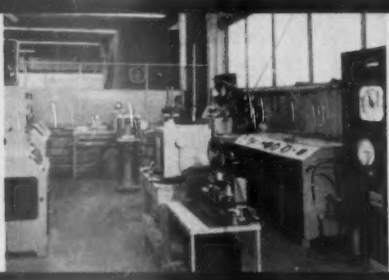
A radial air gap motor in flange mounted construction features minimum overall length and reduces weight with low rotor inertia. It is designed for applications where space limitations are critical and where fast acceleration, frequent start or reversing duty is required. Line includes ratings from  $\frac{1}{2}$  to 25 hp in speeds 900 through 3600 rpm in three basic frame sizes, with a wide variety of mounting flange diameters. Rugged cast iron housing provides maximum protection and resistance to corrosion. Totally enclosed, non-ventilated and fan-cooled construction is available rated 55 deg. C. Normal and high torque, continuous and intermittent duty, single and multi-speed designs are available. Fairbanks, Morse & Co., Freeport, Ill.

Write No. 39 on Information Card—Page 39

# YES SIR...THAT'S "CUSTOM" CONTROL!



Control laboratory determines compound best suited to your need.



Engineering Test Laboratory check final design... establish tolerance limits for production.



"QC," Quality Control technicians are located throughout the plants to examine your parts as they're being made.

It takes more than machines to turn out a consistent, *uniform* batch of oil seals . . . That's why IPC started the highly critical "custom control system."

After engineering and lab analysis a specific recommendation of

manufacture is made for *your* oil seal. Critical tolerance levels are established to guide the many Quality Control people who will follow your parts as they move through our plants. At any time, our QC department can halt pro-

duction if they find variances in manufacture.

Result? . . . *Uniformity* . . . the assurance that IPC is controlling quality for you.

We would be happy to show you this model system at work.



OIL SEALS  
PACKINGS

PRECISION MOLDING

/ Custom designed for your application

## INTERNATIONAL PACKINGS CORPORATION

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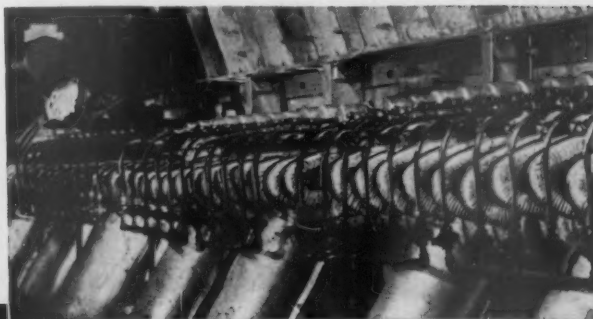
Bristol, New Hampshire

P1

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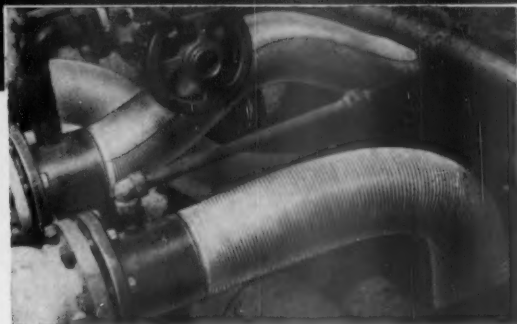
SAVE ON REPLACEMENT of valves, fittings, flanges by applying flexible connectors to pressure lines.



SAVE ON BREAKDOWNS, LOST MAN HOURS due to pipe motion in conveying high temperature media. Use metal hose.

## METAL HOSE SAVES MONEY

... and will for you, in hundreds of places throughout your plant. Your Flexonics PMS Distributor can show you these money-saving applications.



SAVE INSTALLATION COSTS, avoid damage by using metal hose in confined piping space.



SAVE TIME, INCREASE EFFICIENCY by using metal hose as a vacuum or exhaust line on standard or special production jobs.

Every Piping Problem . . . from pump shaft bearing wear to valve and pipe fitting failure can be prevented *readily* with the proper application of metal hose. Thermal expansion and contraction . . . vibration and shock . . . the problem of piping in confined areas—all can be answered with metal hose. Your Flexonics PMS distributor is a Pipe Motion Specialist . . . let him appraise your pipe motion problems and discuss practical improvements with you. He carries a complete stock of metal hose and fittings . . . can fabricate complete assemblies to your requirements.

FLEXONICS DISTRIBUTOR



PIPE MOTION SPECIALIST

# Flexonics

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METAL and SYNTHETIC HOSE  
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BELLOWES • SPECIAL TUBULAR ASSEMBLIES



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Flexonics Corporation  
1316 East Devon  
Bartlett, Illinois

Send free copy of  
Flexonics Metal Hose  
Product and Design Guide. Also send  
the name of your local distributor.



1H-400

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FEBRUARY 27, 1961

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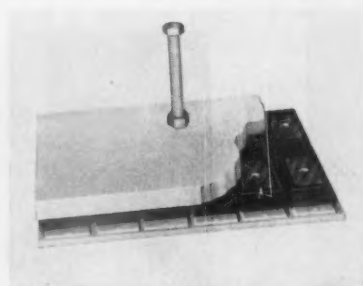
## Products

### New High Strength Steels Are Easily Worked

Two columbium bearing high strength low alloy steels offer minimum yield points of 50,000 and 45,000 psi respectively. They are available as plates, hot-rolled sheets and hot-rolled strip. Corrosion resistance of these grades is equivalent to mild, non-copper bearing steels. Formability characteristics permit simple bending across the rolling direction, flanging and light forming operations of the type regularly performed on standard commercial quality sheet and plate. Welding properties are similar to 0.20 and 0.10% carbon steel. Hot-rolled products can be supplied in pickled condition, with maximum length of 200 in. For pickled sheets up to 60 in. wide and 180 in. for sheets 60 to 77 in. wide. **Product Information Service, Armco Steel Corp., Middletown, Ohio.**

Write No. 40 on Information Card—Page 32

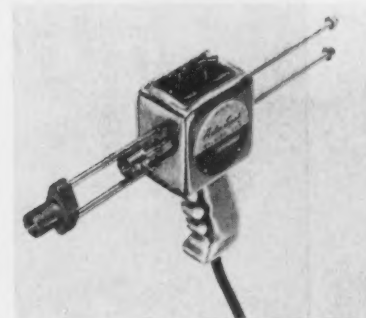
### Machinery Mount Isolates 640 Ton Loads



A heavy-duty machinery mount is designed to isolate shock and vibration from exceptionally heavy, high-capacity metal equipment—mechanical and hydraulic presses of 200 ton capacity and above. Twelve basic sizes are available, covering load ratings of 16,000 to 128,000 lbs. per mount. Each mount is custom designed for particular machine and pit. Vibrator-isolating medium is neoprene, in various stiffnesses to meet individual requirements. **Barry Controls, Div. of Barry Wright Corp., 700 Pleasant St., Watertown, Mass.**

Write No. 41 on Information Card—Page 32

### Spot Weld Gun Works Automatically



A spot weld gun which welds from one side is completely automatic. When gun is pressed against the work, the arc starts and electrode is fed automatically. When welding operation is completed, the gun shuts off and is automatically reset and ready for the next weld. Gun weighs only 2 lbs and comes complete with its own power supply. It welds all kinds of sheet metal from a minimum 26 gauge to a maximum 12 gauge. **Bren Weld Corp., 5114 Third Ave., Brooklyn 20, N.Y.**

Write No. 42 on Information Card—Page 32

## FINEST CARBON and ALLOY STEEL CASTINGS

by *Farrell-Cheek*

### A HUGE LINE

Hardly a phase of American Industry is without the use or need of these products.

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**"FOUNDRYMEN  
FOR OVER  
FIFTY YEARS"**



*Finest Name  
in Cast Steel!*

We vouch for the design and production quality of our castings . . . and we vouch for the benefit they can be to your operation. However, you must become acquainted with F-C castings to best know how they can serve you.

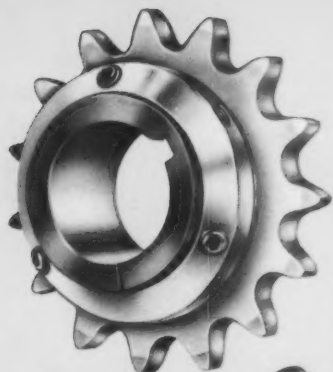
Please allow us to send you those catalogs which are of particular interest. Your inquiry will be given immediate attention.

**FARRELL-CHEEK STEEL COMPANY**  
105 LANE STREET, SANDUSKY, OHIO

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For More Facts About Ad  
on Facing Page Write in No. 233→  
**PURCHASING**





***all steel=  
all set to go!***

## Cullman *Grip-Master*® Sprockets

Simple, compact, strong... featuring interchangeable sprockets, hubs and bushings—GRIP-MASTER SPROCKETS are ready to use in convenient "off the shelf" sizes and styles... the only all-steel constructed sprockets with standard bores, key-

ways and set screws. Sprockets up to 7" diameter have hardened teeth for longer wear. Easy installation and removal. Better investigate GRIP-MASTER today.

*Remember Standard Cullman Sprockets and Roller Chains—also Flexible Couplings... always available.*

**FACTORY  
WAREHOUSES  
AT**

821 South Santa Fe Avenue,  
Los Angeles 21, California  
2618 Carnegie Avenue, Cleveland 15, Ohio  
205 North 11th Street, Tampa 2, Florida

**WRITE** today for free information and literature.

# cullman

# wheel COMPANY

1344 Altgeld Street • Chicago 14, Illinois • BUCKingham 1-2800

*Roller Chain Drives Since 1893*



# STOCK - DELIVERY & SERVICE

**MURRAY** *has all three*



One of the most comprehensive stocks of tubing and pipe in the country. Round, square and rectangular carbon and stainless steel, aluminum, admiralty and cupro-nickel from reputable mill sources.

Delivery is excellent, shipment in most cases being made the same day. Supported by warehouses in three strategic locations — New York, Philadelphia and Pittsburgh.

Service is of the best because our specialists are available by merely picking up your telephone. They are competent, able, courteous and eager to assist you in your problems.

Won't you try **MURRAY** the next time you have a tubing or pipe requirement or problem? Others have for over 115 years.

For the **MURRAY** bi-monthly bulletin and stock list, write Box 476, Elizabeth, New Jersey

**TUBING SPECIALISTS • SINCE 1845**

## **A B MURRAY CO INC**

**NEW YORK • PHILADELPHIA • PITTSBURGH**

**(ELIZABETH, N. J.)**

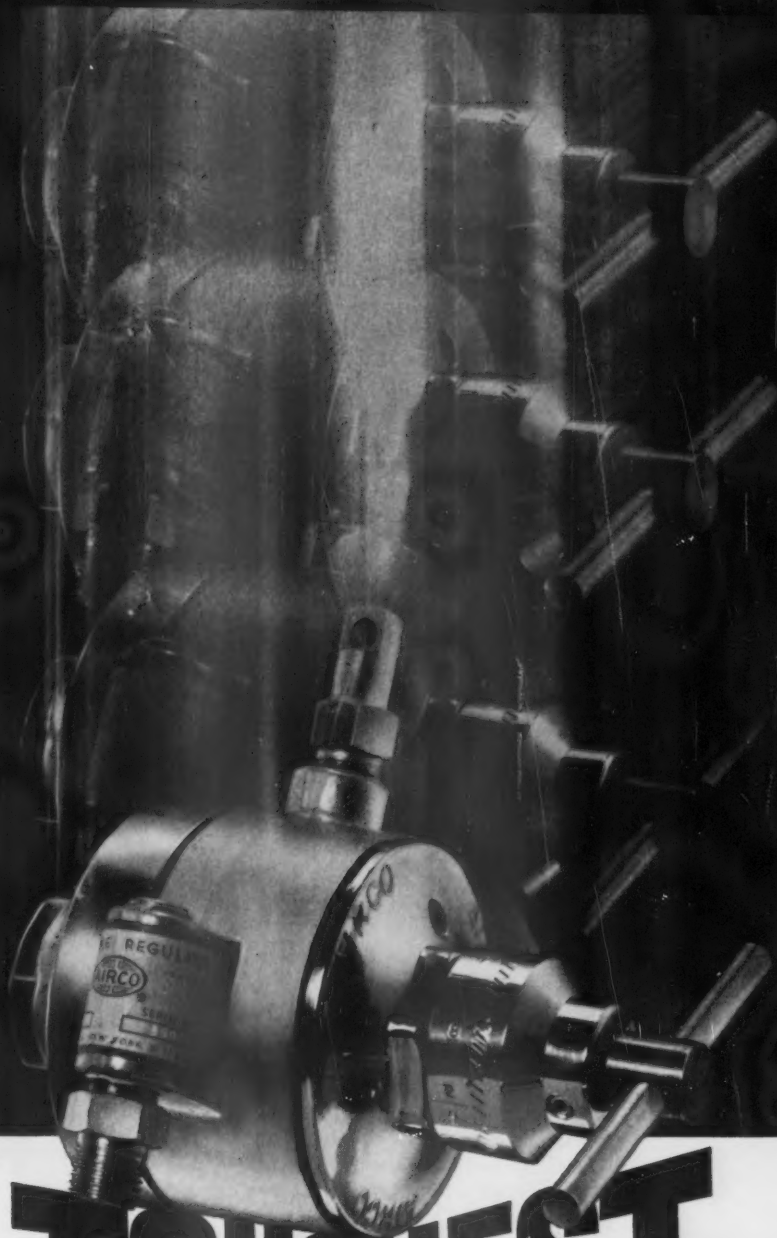
**(BRISTOL, PA.)**

**(McKEESPORT, PA.)**

For More Facts Write No. 234 on Information Card—Page 32

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**PURCHASING**



# TOUGHEST

We dropped a new Airco Gaugeless Regulator on a concrete floor . . . to test its toughness . . . and it came up accurate as ever! It does away with breakable dials. It is designed and built especially for construction and maintenance work.

**How is content indicated?** By a sturdy 4-ring indicator nestled within a solid brass protective housing. As gas volume goes down, the plunger goes down. **How is working pressure indicated?** You read it accurately directly from the adjustable micrometer dial.

## AIRCO'S NEW GAUGELESS REGULATOR

Nothing to crack up here! If rough handling is frequent in your operation,

you'll save money for your company by installing new Airco Gaugeless Regulators.

**Specify Airco**—industry's most complete line of quality regulators, gas welding and cutting torches, tips, electrodes, spotwelders, welding machines, supplies and high purity industrial gases. Look for your nearest Authorized Airco Distributor in your Classified Telephone Directory, under "Welding Equipment and Supplies."



### AIR REDUCTION SALES COMPANY

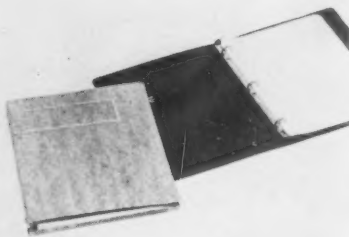
A division of Air Reduction Company, Incorporated

150 East 42nd Street, New York 17, N. Y.

More than 700 Authorized Airco Distributors Coast to Coast

On the west coast—  
Air Reduction Pacific Company  
Internationally—  
Airco Company International  
In Canada—  
Air Reduction Canada Limited  
All divisions or subsidiaries  
of Air Reduction Company, Inc.

# Office Equipment and Supplies



Wide color selection is a feature of new, pressboard ring binder recently introduced by **Acco Products, Ogdensburg, N. Y.** The new binder is panel-embossed to facilitate labeling on front, back or spine. It can also be ordered with die-cut panel and acetate window.

Write No. 43 on Information Card—Page 32

Free chart showing Direct Distance Dialing telephone codes in use throughout the United States and southern Canada is available from **Ohio Seamless Tube Division of Copperweld Steel Company, Shelby, Ohio.** It is printed on 11"x17" coated card stock and includes a map outlining coded areas and general instructions for Direct Distance Dialing.

Write No. 44 on Information Card—Page 32



Telephone rest with compartment to accommodate a directory or file of papers also has built-in pencil holders. A product of **Valley Bolt Company, Davenport, Iowa,** it is made of styrene plastic and available in white, black, grey and beige.

Write No. 45 on Information card—Page 32

Simple instructions on how to multiply and divide with a standard adding machine are offered without charge by the **Victor Adding Machine Co., 3900 N. Rockwell, Chicago 18.** The method requires only a few minutes to grasp and can save hours of figure work. Examples show how the method may be adapted to various multiplication and division problems.

Write No. 46 on Information Card—Page 32

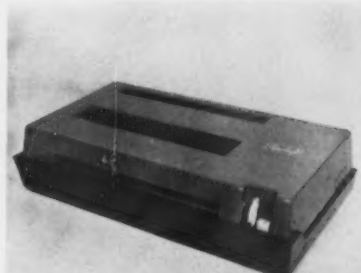


Typing errors can be corrected with specially treated strips of paper. Free samples of the paper are available from **Perry-Sherwood Corp., 255 Park Avenue South, New York 10, N. Y.** To correct a mistake the typist backspaces to the error, inserts one of the strips between the ribbon and the document, then types the same letter again. The special coating is transferred only where the key strikes, "whiting out" the error.

Write No. 47 on Information Card—Page 32

Handbook designed to show the extensive capabilities of today's duplicating processes, machines and papers is being offered without charge by **Champion Paper Specialties, Inc., Hamilton, Ohio.** The spiral bound, tabbed edition is called, "Better Processing With Your Duplicating Department." It is divided into six sections: Major processes, Duplicator manufacturers, The paper story, Production samples, and Helpful hints. There is also a list of terms and definitions of particular interest to duplicator users.

Write No. 48 on Information Card—Page 32

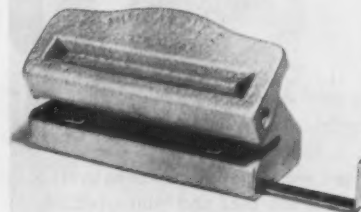


New photocopier has been introduced by **Copy-Craft, Inc., 105 Chambers St., New York 7, N. Y.** It produces black on white copies (up to 5 from one exposure) of originals, carbons and blue prints. The new machine will accommodate copies up to 11" wide by any length.

Write No. 49 on Information Card—Page 32

New booklet is being offered without charge to purchasing departments by the **Avery Label Company of 1616 S. California Avenue, Monrovia, Calif.** It is entitled "Bright Ideas To Make Bright Girls Shine At Filing." The 16-page booklet offers many "do's" and "don't's" of filing plus a series of "ABC's of Alphabetizing."

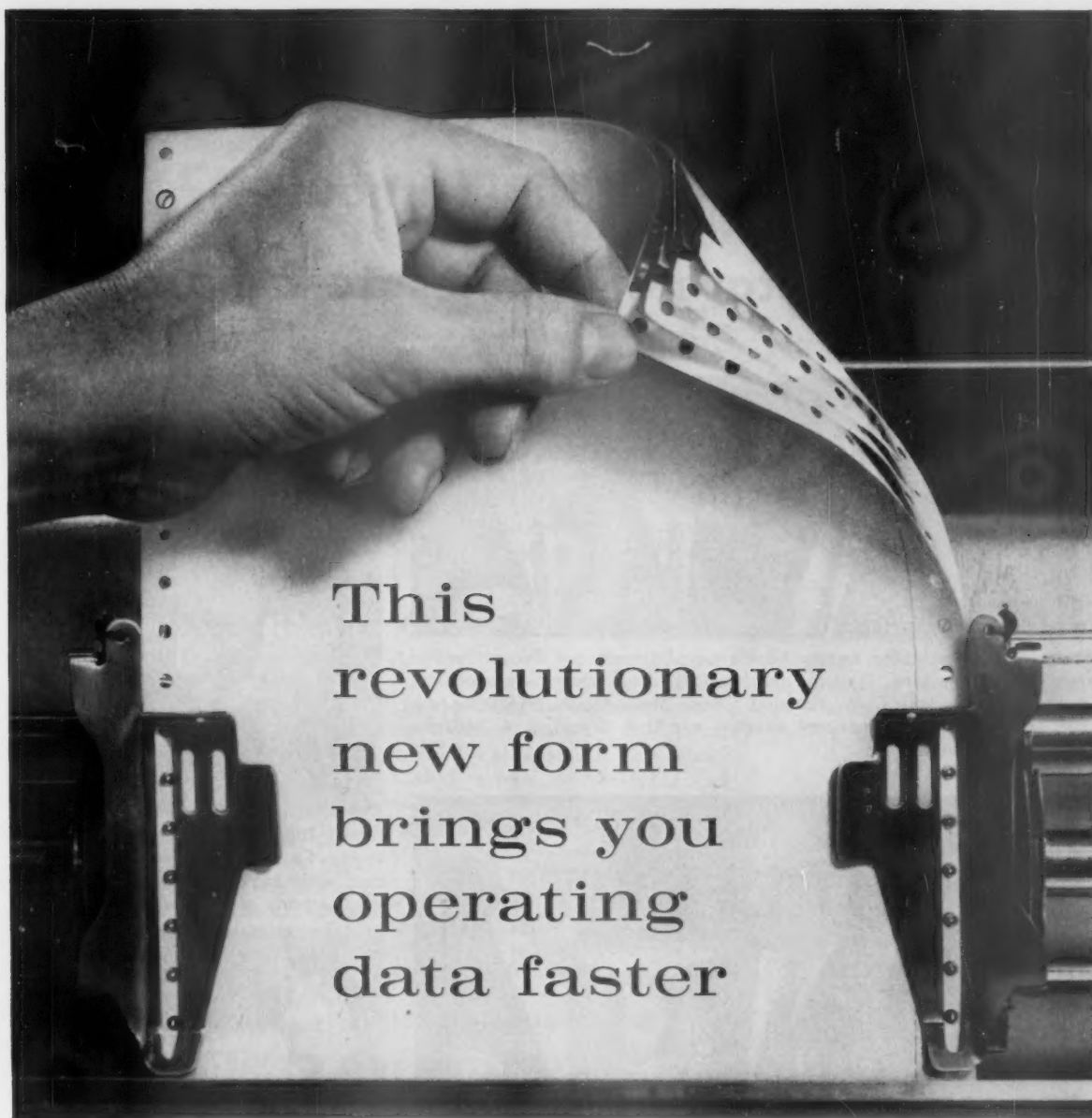
Write No. 50 on Information Card—Page 32



New two-hole punch has been announced by **Mutual Products Co., Inc., Worcester, Mass.** The new addition to the line will punch up to ten sheets of 16 lb. stock, and is 4½" long which permits easy storing when not in use.

Write No. 51 on Information Card—Page 32





This  
revolutionary  
new form  
brings you  
operating  
data faster

Speediflex is a patented product of Moore Business Forms, Inc.

Faster reports permit no interruptions in machine runs. Moore's Speediflex removes much of the forms-handling trouble that has caused interruption, delay and 'down time.' It is a new positive control in achieving trouble-free runs, simplified handling and, very often, savings.

These benefits are due to a special flex-cut construction built into Speediflex. It lets continuous forms flow freely and naturally, with no wrinkling or tearing, and without the 'tenting' and 'peaking' that cause

trouble. Printing in perfect register, on every copy, is possible because there is exact part-to-part alignment of parts at the point of writing.

These are a few of the Speediflex benefits Moore men are demonstrating in business offices throughout North America. A Moore man will be glad to drop in on you—just write the nearest office.

**Build control with MOORE BUSINESS FORMS, Inc.**  
Niagara Falls, N. Y. • Denton, Texas • Emeryville, Calif.  
Over 300 offices and factories throughout the U. S.,  
Canada, Mexico, Caribbean and Central America.



# Moore Speediflex

# Denver P.A.'s Have Big Turnout For State of Minnesota Executive



Officers of the Purchasing Agents Association of Denver are shown together before a recent meeting. They are (left to right): Paul Cheney, Susquehanna Western, vice president; C. W. Manning, Climax Molybdenum, president; Jack Turtle, Ideal Cement Co., national director; and L. R. Bryant, J. A. McGraw Supply Co., secretary.



Three members of Denver Association chat during reception preceding organization's monthly meeting: (l. to r.) Albert Butler, Kistler's; H. R. Emory, Caterpillar Tractor Co.; and E. R. Pettis, Midwest Steel & Iron Works Co.



Sid Groves (l.), Bowman Biscuit Co., and Oscar Watne, Packaging Corporation of America, (r.), give prospective member, Bob Lowe, Old Homestead Bread Co., the lowdown on membership in the Purchasing Agents Association. (Mr. Lowe said later that he is "sold" and plans to join the Association).



Homer Todd (left), Colorado Central Power Co., signs a giant get-well card while James Birrell, Public Service Company of Colorado, looks on.



William Stevenson (right), commissioner of administration for the State of Minnesota, guest speaker at a recent Denver Association meeting, was greeted by Paul Cheney, vice president of the Association. Mr. Stevenson is currently serving as president of the Twin Cities Association.

# Are You Getting All That You Are Paying For When You Buy Cold Finished Steel Bars?



## STANDARDS YOU CAN FOLLOW TO ASSURE BUYING THE BEST WITHOUT PAYING A PREMIUM

All cold finished steel bars are manufactured to industry standards.

But what you don't receive when you order just any cold finished steel bar are the *extra quality features* you get only in Bliss & Laughlin bars. You can see the difference... you can *work* the difference... you can *have* the difference at no extra cost.

These quality features can be important in a number of ways:

### PATENTED LUSTERIZED® FINISH

Lusterized finish means that the bar is cleaner, brighter, free from processing grit, lime and oils.

Because of this freedom from contaminants, machining costs are reduced, collet mechanisms are less likely to jam, and tool life is longer. If plating is required, preparation time is substantially lower. The surface can often be used for finished components without machining.

The patented, exclusive process, applied to all Bliss & Laughlin cold finished bars, is a development of Bliss & Laughlin research.

### CLOSE TOLERANCES

The industry's closer tolerance standards, adopted several years ago, were also a development of Bliss & Laughlin pioneering work in improving manufacturing processes and procedures.

Long before they became industry standards, these closer tolerances were routinely followed by Bliss & Laughlin. You can therefore expect these close tolerances to be consistently maintained in all Bliss & Laughlin production.

### SPECIAL SOIL-FREE COATING

After a protective layer of rust-inhibiting material is deposited on the bar during the Lusterizing process, a special, exclusive, transparent protective oil is added. This special coating repels contaminants and moisture during shipping and storage. It doesn't soil hands as do other protective coatings.

Bliss & Laughlin Lusterized bars are cleaner to handle, cleaner to work, and can be stored for longer periods without fear of rust and contamination from airborne material.

### FAST, NATION-WIDE SERVICE

You can purchase Lusterized cold finished steel bars in mill quantities directly from strategically located Bliss & Laughlin mills across America or from steel service centers everywhere.

Available in rounds, squares, hexagons, flats and special sections, Lusterized bars are furnished in carbon and alloy steels. Either can be leaded.

### MACHINABILITY AND METALLURGICAL SERVICE

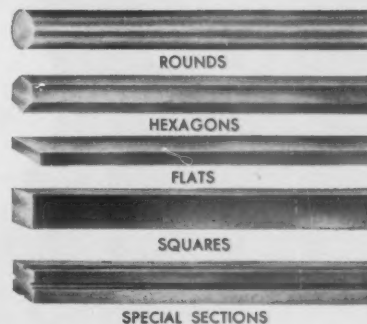
Take full advantage of Bliss & Laughlin's extensive research and development work on the machinability and metallurgy of cold finished steel bars. This service costs nothing and can mean more profits.

### UNQUESTIONED DEPENDABILITY

For 70 years, Bliss & Laughlin has devoted its energies to producing only one line of products—cold finished steel bars. America's leading specialist, with the industry's most complete and most flexible mill service, Bliss & Laughlin concentrates its substantial resources and nationwide facilities on serving customers well and dependably.

\* \* \* \* \*

These are the standards you can follow when you wish to buy the best cold finished bar, without paying premium prices. Why settle for less? Simply specify Bliss & Laughlin Lusterized cold finished steel bars the next time you order or inquire.

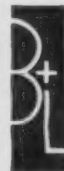


**These additional quality features are available only in BLISS & LAUGHLIN LUSTERIZED COLD FINISHED STEEL BARS**

*Specialists in Finish, Accuracy, Straightness, Strength and Machinability*

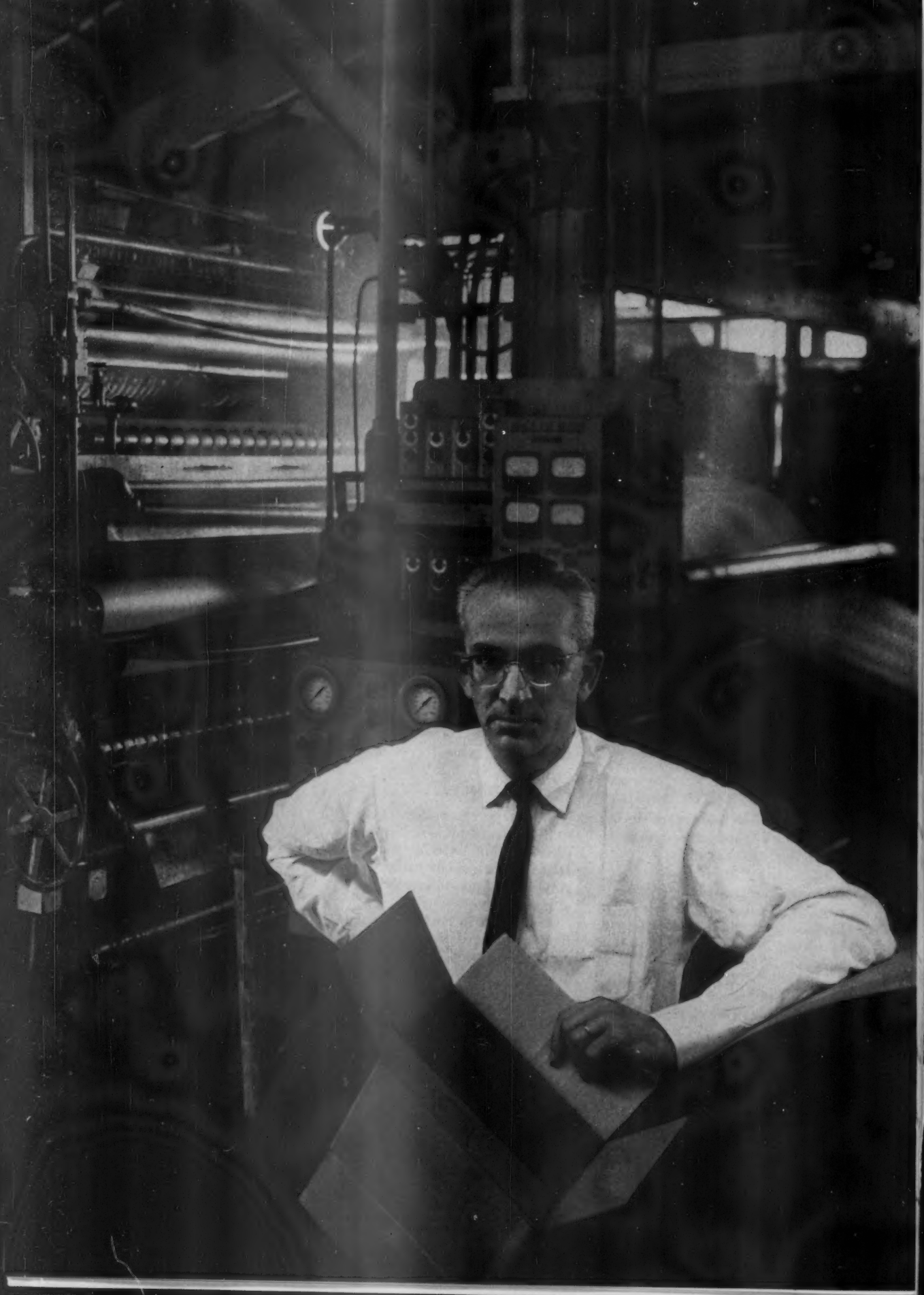
## BLISS & LAUGHLIN

GENERAL OFFICES: Harvey, Ill. • MILLS: Harvey, Detroit, Buffalo, Los Angeles, Seattle, Mansfield, Mass.



*Leading Independent Producer of Cold Finished Steel Bars*







# With him, every case is special

Over a thousand companies have put the construction of  
their corrugated boxes in Metin Hamarat's hands.

**M**ETIN HAMARAT is manager of all Union-Camp corrugated box plants. The shipping containers these plants produce are used by virtually *every* manufacturing industry in the country.

There's a good reason for this wide acceptance. Metin, you see, is a perfectionist. Although making corrugated boxes is a mass production business, he refuses to compromise with quality.

Why this passion for precision when most corrugated boxes look alike? The answer lies in the myriad of unapparent features that contribute to the performance or quality in a corrugated box.

For instance, consider the combining of the sheet itself—the corrugated “sandwich”. Even the *quantity* of adhesive used in this operation is critical. Skimp, even slightly, and the sheet might peel apart later. Use too much adhesive and you often get an unsightly washboard effect that can spoil the appearance of your printing. And, as you might expect, Metin and his pressmen take particular pride in corrugated box printing. So much so, that they frequently *sign* their work!

Scoring is critical, too. Just being *straight* isn't enough. Too deep a score, as Metin points out, weakens the board and makes it prone to tear. Too narrow, or shallow, will make the box hard to fold—cause foul-ups on the packaging production line. And, of course, costly downtime.

And, there's *slotting*—the knife-cuts

that form the top and bottom box flaps. Metin is meticulous here, as well. If you've ever tried to close and seal a carton whose flaps didn't meet perfectly or exactly parallel to each other, you'll understand why.

Attention to these and other key steps in the manufacture of Union-Camp corrugated boxes are the reasons they pay off in performance on your packaging line. That's why with Metin Hamarat, every case is special.

His craftsmanship manifests itself in the quality of products produced in *all* Union-Camp box plants. It typifies the thoroughness of Union-Camp's packaging service. This service covers corrugated box development and design. It includes specifications control, art and merchandising counsel and plant surveys of your materials handling operation.

We'll be glad to tell you more about this comprehensive corrugated service and what it could mean to you in packaging efficiency. A note on your letterhead will bring a prompt reply. Why not write us today?



## UNION-CAMP®

CORRUGATED BOXES

Union Bag-Camp Paper Corporation 233 Broadway N.Y. 7, N.Y.

Plants: Savannah, Georgia • Trenton, New Jersey • Chicago, Illinois • Lakeland, Florida • Spartanburg, South Carolina • Jamestown, North Carolina

Subsidiaries: Allied Container Corporation, Dedham, Massachusetts  
The Eastern Box Company, Baltimore, Maryland.

## Association News

# Philadelphia P.A.'s Predict Better Business Conditions



More than 200 members of the Philadelphia Association turned out to hear an economic forecast by the treasurer of Armstrong Cork.



Phil Shire (l.), Chilton Co., greets Walter Hoadley, guest speaker at the Philadelphia Association. W. M. Whitley (second from left), Philadelphia Electric Co., and Richard Purcell, C. Schmidt's & Sons Inc., look on.



James Hill (c.), Westinghouse Electric Co., relaxes at a recent meeting after turning the presidency of the Philadelphia Association over to Richard Purcell (l.). Earle H. Henderson (r.), Philadelphia National Bank, is secretary.



Walter Hoadley: "You'll be terribly disappointed if you expect to take off and coast uphill."

**M**EMBERS of the Philadelphia Association of Purchasing Agents gave a clear sign recently that they expect general business conditions to improve within the next twelve months. As for present conditions, most felt that industrial activity was flat or getting slightly better. Only a very few saw a downturn.

These predictions were made by a show of hands at a recent meeting when the audience had the tables turned on them by Walter E. Hoadley, treasurer of Armstrong Cork Co., Lancaster, Pa. The group came out to listen to a talk on "What's Ahead For Business?" but Mr. Hoadley began by asking the P.A.'s what they thought of business conditions. The answer came quickly and clearly.

Mr. Hoadley cautioned his audience not to accept an economic prediction just because someone makes it. Remember, he said, that you, the listener, are also a forecaster.

The greatest problem facing our economic growth is "economic illiteracy." Everyone must know what's going on, he declared. Purchasing agents, in particular, must take a broader view of their entire company. "It's your responsibility to know where your company stands and where the nation stands, economically."

As far as what's going to happen in 1961, Treasurer Hoadley predicted that the bottom of the recession is here or close at hand. "We will not see too much of a boom this year," he added, "but the kind of year we have is about

(Please turn to page 144)



# QUALITY CONTROL

## ASSURES PREDICTABLE PERFORMANCE OF BARDEN PRECISION BALL BEARINGS

One of the key factors behind the world renowned reliability of *Barden Precision* bearings is quality control. First step in Barden's advanced quality control procedure is inspection of bearing steel to assure its conformance to rigid specifications.

From here on, bearing parts are carefully checked — microscopically, mechanically and electronically — at every manufacturing operation. At the end of the line, functional testing of assembled bearing assures that, small quantity or large, every *Barden Precision* bearing will meet your performance requirements.

Typical of Barden quality control instrumentation is the Waviness Gage, a production tester used to check

the accuracy of raceway grinding — one of Barden's many contributions to the advancement of the precision bearing art.

Barden quality control — together with Barden methods in manufacturing, bearing assembly, final inspection, lubrication, functional testing and sealed packaging — is your assurance that with *Barden Precision* bearings you get consistent quality from the beginning to the end of each production run.

Barden is a major supplier of standard bearings in sizes from .0469" bore to over 3" O.D., all manufactured to *Barden Precision* standards of dimensional accuracy, uniformity and reliability.

for reliability...specify

**BARDEN**



**PRECISION BALL BEARINGS**

THE BARDEN CORPORATION. 239 Park Avenue, Danbury, Connecticut

Western office: 3850 Wilshire Boulevard, Los Angeles 5, California

For More Facts Write No. 238 on Information Card—Page 32

For More Facts About Ad  
on Following Page Write in No. 239→





You get **MORE THAN A MOTOR** with General Electric's Form G...for instance...

## **Years-Ahead Design Leadership**

The design leadership reputation of General Electric Form G fhp motors can help to make your products easier to sell.

Both your salesmen and your customers know that G-E Form G design has led the way to long motor life and reliable performance. Constant improvement and innovation in these Form G motors also help you keep ahead of changing industry demands.

All your operations stand to gain from purchases of Form G motors. For instance:

**Your designers**—Form G motors are versatile. Mount them at any angle, direct or belt drive. G-E engineers are on hand to help with unusual motor applications. **Your manufacturing**—Assembly time can be reduced. It takes just a few minutes to mount this motor on your product, only seconds to connect leads.



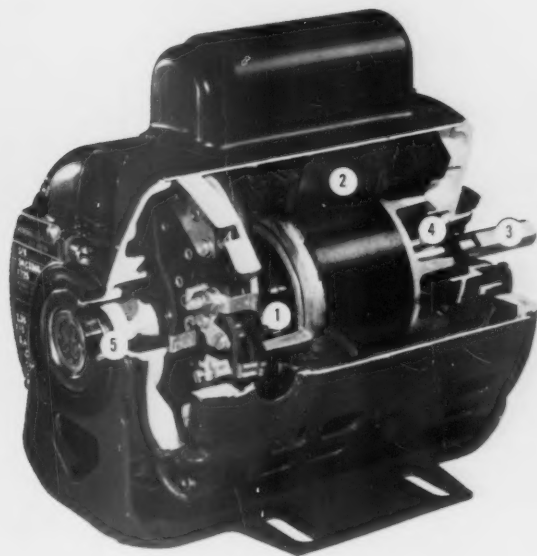
## THESE YEARS-AHEAD FORM G MOTOR FEATURES MEAN LONG LIFE, RELIABLE PERFORMANCE

**1. RELIABLE SWITCH**—Centrifugally-operated switch has been life-tested to last for more than 3,500,000 operations. Dependable switch mechanism operates with positive snap action.

**2. LONG-LIFE STATOR**—Heavy-duty stator bonding dip and Mylar\* insulation protect against damage caused by heat, stress, moisture. Stator clamps provide additional rigidity.

**3. RUST-RESISTANT SHAFT**—Special gunmetal-like treatment of motor shaft resists rust and corrosion, simplifies product service. Fans, pulleys, and couplings are easy to remove.

**4. LONG-LIFE LUBRICATION**—Over 50% more oil than in old-design motors and an efficient oil retention system contribute to motor's doubled lubrication life; cut maintenance.



**5. THRUST PROTECTION**—Interlocking washer assembly withstands normal thrust from any direction, regardless of motor angle; also acts as an oil seal for long motor life.

**6. COMPLETE LINE**—Over 850 basic models—and literally thousands of variations—mean there's a standard Form G motor to meet your product's exact requirements.

\* Reg. Trademark of Du Pont Co.

**Your component inventory**—Assurance of fast, on-time delivery from General Electric means lower inventory requirements for you.

**Your product service**—Your customers can get fast, local service from a nationwide network of G-E Electric Motor Service Stations.

You get these *added values* at no extra cost. So why settle for less?

Form G fhp motors are available in NEMA 48 and 56 frames. For more information, call your G-E Sales Engineer or write for GEA-6424 to Section 721-01, General Electric Co., Schenectady 5, N. Y.

*Progress Is Our Most Important Product*

GENERAL

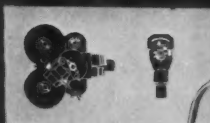


ELECTRIC

# SANDVIK SPRINGS

Spiral • Crosscurved • Stainless • Special

**FIT PERFORMANCE  
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RETURN REELS

AIRCRAFT &  
MISSILES

AND MANY  
OTHER  
PRODUCTS

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Write for free  
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In N. Y. C. ALgonquin 5-2200  
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S.S. 208

For More Facts Write No. 240 on Information Card—Page 32  
142

Most efficient, most economical way  
to line drums, cartons, cans, pails

**GER-PAK**  
POLYETHYLENE

**LINERS IN ROLLS**

**SAVE  
WORK!**

Just slip GER-PAK Liners  
onto any holder above  
work area. No handling  
problem!



**SAVE  
TIME!**

Pull Liner down over  
mandril. Then zip off  
quickly, cleanly at per-  
foration!



**SAVE  
FUSS!**

No smoothing-out by  
hand! Insert mandril and  
Liner into container,  
"cuff" around top, re-  
move mandril!



For drums  
For cartons  
For cans, pails



- Quality-made to seal out dirt, moisture, all contamination!
- Chemically inert to protect containers!
- Up to 120 inches in width; no limit to length!
- Available gusseted and non-gusseted!
- Tie-off or peel-over construction!
- LEAKPROOF DOUBLE SEAL optional upon request!

Write Dept. PM-2 for samples.

the short way to say superior polyethylene sheeting

**GER-PAK®**

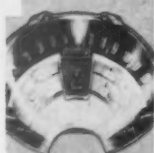
GERING PLASTICS, division of STUDEBAKER-PACKARD CORP.,  
Kenilworth, N.J.

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**CYCOLAC**  
BRAND POLYMERS

FROM BORG-WARNER  
ARE BETTER IN MORE WAYS  
THAN ANY OTHER PLASTIC!



When you're considering plastic for your company's products, it will pay you to investigate CYCOLAC brand polymers, a unique type of ABS resin that combines three major advantages . . . toughness, hardness and rigidity. Many industry leaders have discovered that CYCOLAC resins help them achieve material and production economies while maintaining their high quality standards. Companies such as General Electric, Remington-Rand, Western Electric, Chrysler and Seward, to name a few, are using CYCOLAC ABS in appliances, typewriters, telephones, automotive applications and luggage with excellent results.

Find out why CYCOLAC is today successfully replacing metal and non-metal materials in hundreds of products. For technical information and the name of the processor nearest you, write Dept. CP-2.

MARBON CHEMICAL  
WASHINGTON

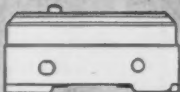

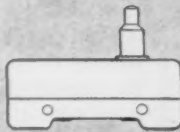
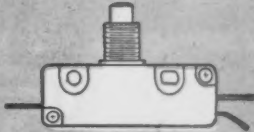
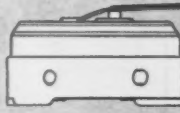
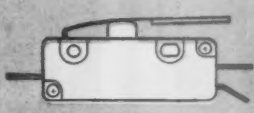
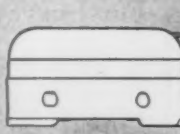
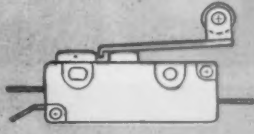


DIVISION BORG-WARNER  
WEST VIRGINIA

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FEBRUARY 27, 1961

PURCHASING AGENTS

why  
pay **75%**  
more.....?

↓ If you use <b>THIS</b>	↓ Change to <b>THIS</b> for less!
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	 E13-00J
	 E13-00D
	 E13-00H



- .100 over-travel minimum.
- 50% higher hp rating (¾ hp)
- Standard case & mounting dimensions
- Terminals accept Q. C. or solder connectors
- U.L. rated 15 amp 125/250 V a-c ¾ hp V a-c, 1½ hp 250 V a-c



For complete information and sample switch, write to—

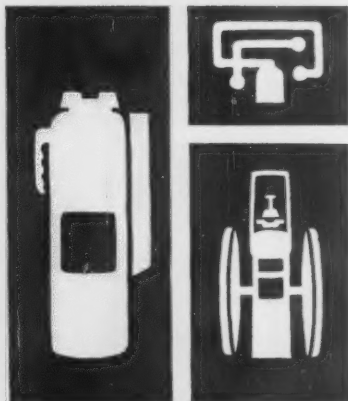
**CHERRY ELECTRICAL PRODUCTS CORP.**

1654 Deerfield Rd.  
HIGHLAND PARK, ILLINOIS

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## ■ a review of your company's fire protection program...now, may turn out to be one of your best decisions



Write for our latest catalog describing Ansul's complete line of hand portable dry chemical, carbon dioxide and water extinguishers, wheeled, stationary, mobile units and automatic systems.

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ANSUL CHEMICAL COMPANY  
1 STANTON ST., MARINETTE, WISCONSIN

For More Facts Write No. 244  
on Information Card—Page 32

## Association News

(Continued from page 138)

what you make it.

"Don't sit back and watch. Be active and aggressive." However, he warned, don't let your emotions control your thinking. Business may be bad one day, good the next, and bad the next; be sure not to let your emotions go up and down the same way.

"One of the problems ahead," he concluded, "is whether we soar substantially or moderately. You'll be terribly disappointed if you expect to take off and coast uphill."

More than 200 members turned out for this important meeting which was also the first to be presided over by the Association's new president, Richard L. Purcell, C. Schmidt's & Sons Inc.

Franklin Smith, Jerrold Electronics Corp., was moderator for the pre-meeting forum. This session was a panel discussion by two experts from Pennsylvania's department of revenue. The subject, Pennsylvania's sales and use tax, proved to be highly volatile. Time ran out long before the questions.

### New Chairman Named For Survey Committee



E. F. Andrews, Allegheny Ludlum Steel Corp., has been named chairman of the Business Survey Committee of National Association of Purchasing Agents. Mr. Andrews, a former national president of N.A.P.A., succeeds Chester F. Ogden, Detroit Edison Co., also a former national president.

## "I get all my charts with just one order!"



*"I used to have to buy recording charts from about as many different companies as we had instruments in the plant. Not now—not with that new GC Recording Chart one-order service!"*

You, too, will benefit from GC's "one-order service". You'll save time and money and paperwork when you make out just one purchase order for all your company's chart needs.

Only GC keeps more than 15,000 different types of circular, strip and rectangular charts constantly in stock. Our ready-to-ship inventory averages some 8,100,000 items, all produced under controlled-humidity conditions and kept current by GC's own electronic data processors.

GC will help with your stock room problems, too. Order charts in long-term quantities, for example, and be assured that we will ship the charts with the exact regularity you specify.

Ease of ordering, uniformly high quality, economy of costs—GC offers all these. Ask for our Stock List—and for samples.



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Buffalo 10, New York

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PURCHASING



# "Double-Seal"<sup>TM</sup>

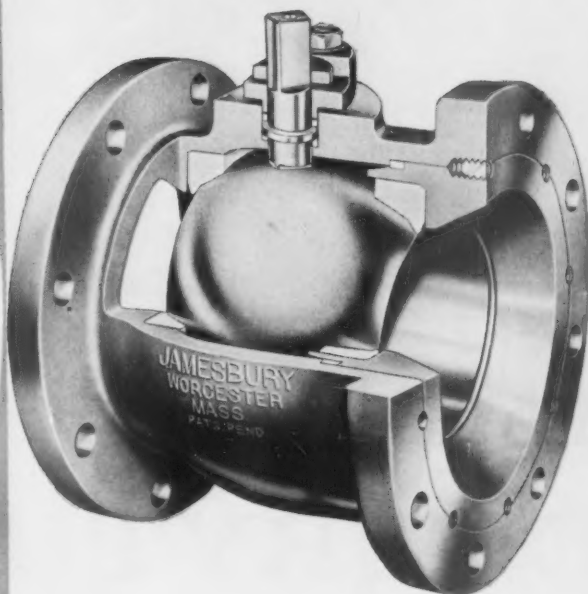
*Outline for  
Successful  
Valving*

## jamesbury BALL VALVES\*

\*PATENTED

### As Versatile As Industry Itself!

# "Double-Sure"



The words "Double-Seal" have delivered a new concept of valve dependability and performance. The exclusive "Double-Seal" design means complete shut-off on BOTH sealing surfaces of the ball. Because of this action the valve will hold pressure equally well in either direction.

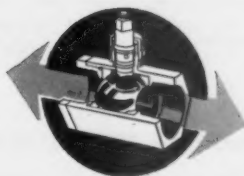
In long term high-cycling through a wide variety of applications, the "Double-Seal" Ball Valve has proven virtually maintenance free.

For maximum leak-proof performance, full flow and easy quarter turn operation, the Jamesbury "Double-Seal" Ball Valve is a proven leader.

**JAMESBURY CORP.,**

**94 NEW STREET, WORCESTER, MASS.**

Send for Jamesbury's  
"At Your Service" Literature



364-G © 1961 Jamesbury Corp.

#### MATERIALS:

Jamesbury "Double-Seal" Ball Valves are available in Types 303, 316 and Alloy 20 Stainless Steels, Carbon Steel, Bronze, Ductile Iron, Monel, Aluminum and PVC. Other materials on special order. Interchangeable seats and seals are available in "Teflon", Nylon, Buna-N, Neoprene, Hypalon and natural rubbers.

Pneumatic, Hydraulic and Electric Motor Operators to fit Remote Control Requirements.

#### SIZES:

Screwed End: 1/4" through 3". Flanged: 150# series — 1/2" through 12". 300# series — 1/2" through 8".

\*10" and 12" on application

\*600# series on application.

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For More Facts About Ad  
on Following Page Write in No. 247→

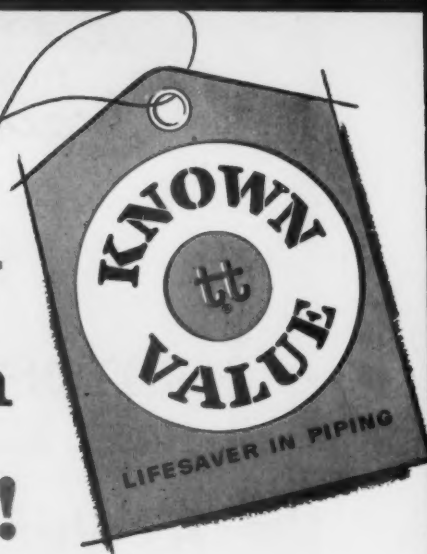


More in-stock items to avoid delays

More specials to avoid makeshifts

More research to prevent trouble

# You get more of EVERYTHING when you insist on TUBE TURNS!



There was never a time when *known value* was so important, when *extra* care was so necessary in buying components for welded piping systems. It is a time when you must make sure TUBE-TURN quality goes into your job, not merely into your specifications.

TUBE-TURN Distributors and responsible piping contractors are glad to give you this assurance. They are proud to provide affidavits on any job that they have met your specifications to the letter, affidavits in which they identify and describe whatever substitutes they supply within the "or equal" latitude allowed.

You get more of *everything* when you insist on TUBE-TURN welding fittings and flanges, the finest in product and service when you rely on the people who supply them regularly and are proud to prove it. Write for a copy of our new Bulletin 1031-B251. It's interesting and informative. TUBE TURNS, Louisville 1, Kentucky. "TUBE-TURN" and "tt" Reg. U.S. Pat. Off.

## TUBE TURNS

Division of **CHEMETRON** Corporation



More advanced engineering



More technical data to save mistakes



More responsible distributors



**LIFESAVER For The  
Men Who Design Piping**

Tube Turns offers not only the most complete line of properly engineered welding fittings and flanges for utmost flexibility in planning any piping installation, but a wealth of technical data and able engineering assistance without counterpart anywhere in the world. Standardizing on TUBE-TURN piping components saves time and trouble.



**LIFESAVER For The  
Men Who Buy Piping**

The world's most complete line of welding fittings and flanges, over 12,000 regularly stocked TUBE-TURN items, permits every specification to be met without compromise or delay. A fully responsible Tube Turns Distributor is as near as your telephone to give prompt delivery of *all* your needs from *one* source on a *single* order. Saves time, paperwork, multiple checking, piecemeal deliveries and the inevitable problems of divided responsibility. You *save* money when you standardize on TUBE-TURN piping components!



**LIFESAVER For The  
Men Who Install Piping**

Time is money in the assembly of a welding piping system. TUBE-TURN welding fittings and flanges do not require remanufacture or compromises... or the delays that result from rejections. They are uniform, precision-engineered for easy, time-saving installation. And you can put them in and *forget* them because they *are* dependable. TUBE-TURN piping components cost less because they save more in every way!

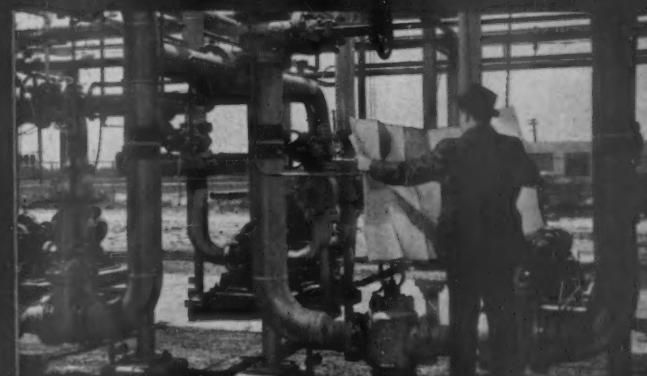
**TUBE-TURN Welding  
Fittings And Flanges Are  
Stocked By And Sold  
Exclusively Through  
Authorized Distributors.**



More service with less paperwork



More savings getting pipe installed



More dependability and satisfaction



## Association News

### Winter Meeting Held By Old Dominion

The Old Dominion Purchasing Agents Association held its recent winter meeting in Richmond, Va. A two-day affair, the quarterly session was well-attended by Virginia purchasing agents.

The first day was divided into two panels, one sponsored by the professional development com-

mittee and the second by the public relations committee.

Robert F. Misfeldt, Celanese Corp. of America, moderated the professional development panel. The panelists were Dr. T. J. Horne, Virginia Polytechnic Institute, who spoke on "Professional Education—What Should It Be?" and Christian E. Grosser, Philip Morris, Inc., who covered the topic "How Professional Development Can Benefit The Individual."

The public relations panel was

moderated by Richard V. Hughes, Reynolds Metals Co. Donald McCammond, director of public relations, Reynolds Metals Co., was the first speaker. Other panelists were G. Lloyd Nunnally, State of Virginia, and Mrs. Wilma Wilson, Reynolds Metals Company.

Nunnally spoke on "The Value



G. Lloyd Nunnally

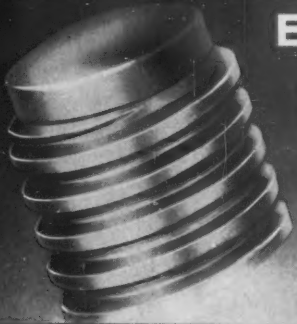
N.A.P.A. Places on Public Relations." Mrs. Wilson's topic was "Public Relations: Sales-Purchasing Relationships."

Meetings on the second day were given over to value analysis and standardization. The Virginia purchasing agents were shown a slide film "Value Analysis—How It Works" and heard an address by Harold F. Robinette, West Virginia Armature Company. Robinette's talk was on "Applied Value Analysis."

PURCHASING



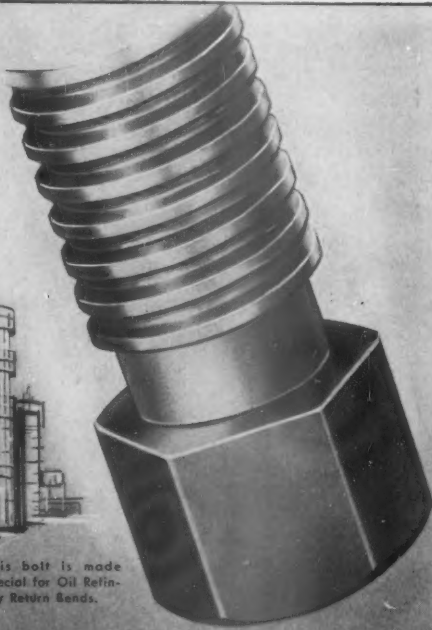
"And we'll have a lot better year if you get out of here and let me do some buying . . ."



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CAP SCREWS • NUTS  
IN ALLOYS  
STAINLESS  
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**THE CORRECT FASTENER FOR THE JOB . . .**  
It will pay you desirable dividends in satisfactory results to place your fastener specifications in the hands of specialists. For nearly a half century we have furnished widely diverse industries with fasteners to meet the rigors of extreme temperatures, corrosion, tensiles, fatigue, impact and shear stresses. Send us your specifications for prompt estimate.



This bolt is made special for Oil Refinery Return Bends.

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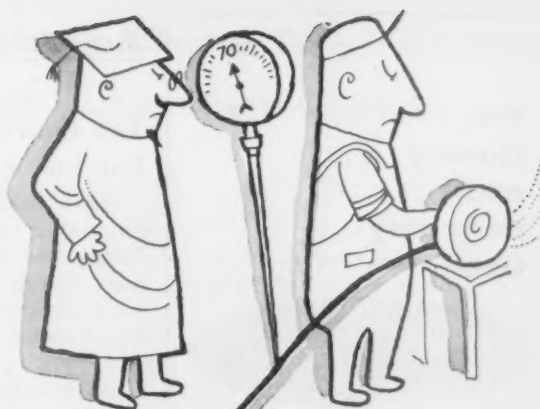


**ERIE BOLT & NUT CO.**  
Erie, Pennsylvania  
Representatives in Principal Cities

For More Facts Write No. 248 on Information Card—Page 32



is something  
**wrong**  
here?



There certainly is something wrong, it's low air pressure . . . the biggest thief of production on air operated jobs — the biggest thief of your payroll dollars!

Every time your workmen use portable air tools or other air-operated devices, and you have low air pressure, their production can drop as much as 27% if you have only 70 pounds pressure and need 90.

Why let low air pressure shrink your manpower, call on your nearest Ingersoll-Rand Air Engineer or see your local I-R Compressor Distributor. He will be happy to look into your compressed air problem and make a cost reducing recommendation.

**Ingersoll-Rand**  
108A3 11 Broadway, New York 4, N. Y.

*Packaged  
air-cooled air compressors  
1/2 through 20 horsepower*



**Other air-cooled units to 125 hp**

**... water-cooled units to 7500 hp**

**For  
Quality  
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Economy  
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**MALLEABLE**

**For Service Contact...**

**CONNECTICUT**

Connecticut Malleable Castings Co., New Haven 6  
Eastern Malleable Iron Co., Naugatuck

**DELAWARE**

Eastern Malleable Iron Co., Wilmington 99

**ILLINOIS**

Central Fdry. Div., Gen. Motors, Danville  
Chicago Malleable Castings Co., Chicago 43  
Moline Iron Works, Moline  
Moline Malleable Iron Co., St. Charles  
National Malleable and Steel Castings Co., Cicero 50  
Peoria Malleable Castings Co., Peoria 1  
Wagner Castings Company, Decatur

**INDIANA**

Albion Malleable Iron Company,  
Muncie Division, Muncie  
Link-Belt Company, Indianapolis 6  
National Malleable and Steel Castings Co., Indianapolis 22

**IOWA**

Iowa Malleable Iron Co., Fairfield

**MASSACHUSETTS**

Belcher Malleable Iron Co., Easton

**MICHIGAN**

Albion Malleable Iron Co., Albion  
Auto Specialties Mfg. Co., Saint Joseph  
Cadillac Malleable Iron Co., Cadillac  
Central Fdry. Div., Gen. Motors, Saginaw

**MINNESOTA**

Northern Malleable Iron Co., St. Paul 6

**MISSISSIPPI**

Mississippi Malleable Iron Co., Meridian

**NEW HAMPSHIRE**

Laconia Malleable Iron Co., Laconia

**NEW YORK**

Acme Steel & Malleable Iron Works, Buffalo 7  
Frazer & Jones Company Division

Eastern Malleable Iron Co., Solvay  
Oriskany Malleable Iron Co., Inc., Oriskany  
Westmoreland Malleable Iron Co., Westmoreland

**OHIO**

American Malleable Castings Co., Marion  
Central Fdry. Div., Gen. Motors, Defiance  
Dayton Malleable Iron Co., Ironton Div., Ironton  
Dayton Malleable Iron Co., Ohio Malleable Div., Columbus 16  
National Malleable and Steel Castings Co., Cleveland 6

**PENNSYLVANIA**

Buck Iron Company, Inc., Philadelphia 22  
Erie Malleable Iron Co., Erie  
Lancaster Malleable Castings Co., Lancaster  
Lehigh Foundries Company, Easton  
Meadville Malleable Iron Co., Meadville  
Pennsylvania Malleable Iron Corp., Lancaster

**TEXAS**

Texas Foundries, Inc., Lufkin

**WEST VIRGINIA**

West Virginia Malleable Iron Co., Point Pleasant

**WISCONSIN**

Belle City Malleable Iron Co., Racine  
Chain Belt Company, Milwaukee 1  
Federal Malleable Company, Inc., West Allis 14  
Kirsh Foundry Inc., Beaver Dam  
Lakeside Malleable Castings Co., Racine  
Milwaukee Malleable & Gray Iron Works, Milwaukee 46

**These companies are members  
of the Malleable Castings Council**

## Association News

### Ten Courses Slated For Los Angeles P.A.'s

There will be ten evening courses in purchasing subjects during the spring semester at seven Los Angeles colleges. Sponsor of the courses is the Purchasing Agents Association of Los Angeles.

Six will be general courses in industrial purchasing. The others cover a full range of subjects including purchasing procedures, advanced purchasing, purchasing mathematics, and specialized case studies in purchasing.

Fees for some of the courses are no more than the cost of the books to be used. Members of the Los Angeles Association who will serve as instructors are: T. T. Grimshaw, Southern California Gas Co.; A. G. Pearson, Lockheed's Missile & Space Division; Ralph W. Dixon, Autonetics Division of North American Aviation; and Robert Becker, Space Technology Laboratories, Inc.

College professors make up the balance of the list to provide a full range of purchasing and formal educational experience. The courses are open to all purchasing people in the area and are not limited to members of the Los Angeles Association.

### Creative Thinking At Grand Rapids Meeting

A recent dinner meeting of the Grand Rapids Association of Purchasing Agents was the scene of a provocative "brainstorming session." William Stubbs, training director of Packaging Corporation of America, started it off with a talk on "Creative Thinking—The Forward Look."

Stubbs debunked the theory that a person must be born with creative ability. What really happens, he said, was that most people have buried their creative ability under layer upon layer of judgment.

"There are two approaches to creative thinking," Mr. Stubbs told his audience. "The first is

the organized approach, and the second is the free-wheeling approach. In the first, a program of development aimed at improvement in a particular area is spelled out. Small but important changes are made, step by step, toward these specific goals.

"In the second approach—free wheeling—we dream big and we think big. It is a thinking process



William Stubbs

which uses unknowns and then works back to reality. It requires a free imagination."

The purchasing agents gave the speaker their full attention as he recounted the three main difficulties to being creative: the perceptual blocks, the cultural blocks and the emotional blocks.

Perceptual blocks include thoughts and impressions, such as "It won't work" and "We've tried it before." A desire to conform and a reluctance to ask embarrassing questions show up in the cultural blocks. Emotional blocks reflect our individual personality traits, such as the lack of drive in putting a solution to work and the fear of making a mistake.

To get ideas started, Stubbs suggested brainstorming as one technique. One of the advantages of a program of this kind, he said, is that you don't jump for the first idea that comes to mind. "Sometimes the 50th idea is much better than the first."

At the conclusion of his talk, a panel of members "brainstormed" a hypothetical problem. Watching the technique in use gave all those in attendance a more vivid idea of the potential values to be gained from brainstorming.

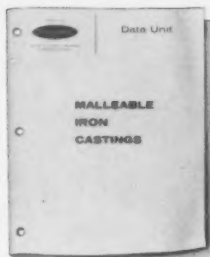
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## New Cars and Trucks Use More Malleable For Better Performance...Lower Cost

As the automotive industry steps up its drive to pack greater performance into lighter weight vehicles and still hold costs in line, the demand for Malleable iron castings continues to increase. Noted for their strength, toughness, machinability and economy, Malleables are used as key components in every make and type of vehicle.

Matching each new advance in automotive technology, Malleable is now available in a broad range of properties, including tensile strengths from 50,000 to 120,000 psi!

Find out now how much Malleable castings can improve your products. Contact any company that displays this symbol —



**For Free Literature** on advantages of Malleable iron castings, with examples from the automotive industry, ask any member company for Data Unit No. 113, or write to Malleable Castings Council, Union Commerce Building, Cleveland 14, Ohio.

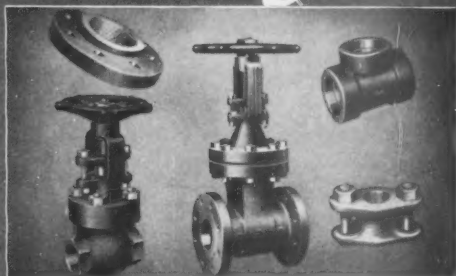


Testifying to Malleable's outstanding ability, pearlitic Malleable iron crankshafts are now used in both cars and trucks, like this new heavy-duty highway hauler. Pearlitic Malleable was chosen for its high strength, wear resistance, damping capacity and machinability... Malleable is the most machinable of all ferrous metals of similar properties.



# Vogt PRODUCTS

Designed for today's  
*Tough*  
service demands



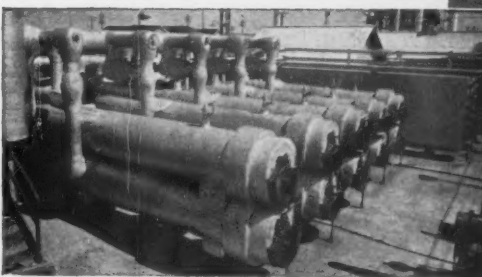
## FORGED STEEL VALVES & FITTINGS FOR TOUGHNESS AND TROUBLE-FREE SERVICE

Forged from carbon and alloy steels, Vogt valves, fittings, flanges and unions are built to safely handle liquids and gases at high pressures and temperatures in the modern petroleum refinery and petro-chemical plants. The complete line includes flanged, screwed and socket weld end globe, gate and check valves—ells, tees and crosses—couplings—bushings—plugs—unions—flanges and flange unions—and weld caps.



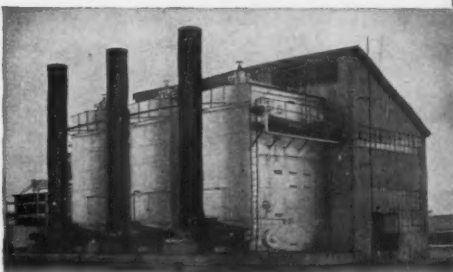
## MORE REFRIGERATION TONNAGE AT LESS COST

More than 70 years of engineering and manufacturing experience is incorporated in Vogt refrigerating and ice making equipment. Compression Systems and Tube-Ice Machines in a wide range of capacities serve industrial and processing plants and institutions here and abroad.



## PROCESS EQUIPMENT FOR EVERY SERVICE

Vogt constructs process equipment in wide variety to all Codes. Still and towers, oil chillers, crystallizers, heat exchangers, molding machines, etc., serve in the manufacture of oils, greases, 100 octane gasoline, synthetic rubber, chemicals and related products around the world.



## HIGH EFFICIENCY STEAM GENERATORS

Vogt steam generators are designed to give maximum rating in a minimum of space, with high efficiency and low maintenance expense. Bent tube and straight tube designs are available for solid, liquid or gaseous fuels to meet every power, process or heating requirement.



## SPECIAL MATERIALS COMBAT CORROSION AND PRODUCT CONTAMINATION

Our modern shops produce a wide variety of equipment from special metals and alloys to fight corrosion and product discoloration or contamination. Fabrication procedures insure that corrosion resistant properties of welds will match that of the materials used to construct the equipment.



## HENRY VOGT MACHINE CO., LOUISVILLE, KY.

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Write for literature, Dept. 24A-GPM



## GAYLORD containers conform right down the line

One non-conforming container can jam your packaging line, increase production costs. Avoid this. Buy Gaylord containers that meet all your specifications, well within allowable tolerances. They arrive in uniform bundles, too.

Get the precise facts from your nearby Gaylord Man, today.



**CROWN ZELLERBACH CORPORATION**  
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CANADA LTD VANCOUVER B.C.

HEADQUARTERS, ST. LOUIS  
PLANTS COAST TO COAST

For More Facts Write No. 252 on Information Card—Page 32

FEBRUARY 27, 1961

153

No. 7 in a series of washroom survey comments from "SBS soap counselors"



*They asked us  
how to combat  
hard-to-remove soils!*



**George Y. Schombert**  
is the soap counselor who has helped many plants find economical solutions to skin hygiene problems. Here's his case history report of conditions at an Eastern steel mill:

"Workers in this steel mill come in contact with many hard-to-remove greases, tars, chemicals and paints that are potential irritants. In the Coke By-Products Plant, for instance, a too high percentage of workmen showed signs of rough, cracked hands due to the use of harsh solvents as a hand cleaner. Plant efficiency suffered; management asked us for a solution.

"We obliged by suggesting SBS-30 Waterless Skin Cleanser. After telling them how completely SBS-30 has cleared up skin hygiene problems in other plants, we showed them how easily they could set up waterless washstations . . . anywhere in the mill where they have hard-to-remove soil problems. We pointed out other SBS-30 advantages: elimination of washing with harmful solvents, fewer trips to washrooms . . . happier employees working more efficiently!"

*Money-saving suggestions* like this begin with OPERATION PINPOINT—a thought-provoking presentation filled with facts about skin hygiene and washroom maintenance. The SBS soap counselor serving your area can pinpoint the right soap to do every skin cleansing job best and at lowest cost in your plant. Let him show you OPERATION PINPOINT . . . just call your nearest SBS office, collect.



*the washword of industry*

**SBS**  
sugar beet products co.

SAGINAW, MICH. • Los Angeles, Calif. • Newark, N.J.  
CANADA: Chemical By-Products, Ltd., Toronto, Ontario



## Association News

### Detroit Assn. Plans Two-Day Seminar

Plans have been completed for a two-day purchasing seminar to be held March 28 and 29 in the Pick-Fort Shelby Hotel in Detroit.

The seminar is sponsored by the professional development committee of the Purchasing Agents Association of Detroit. W. D. Schelbe, chairman of the committee has announced that the theme will be "Discussions of the Purchasing Function."

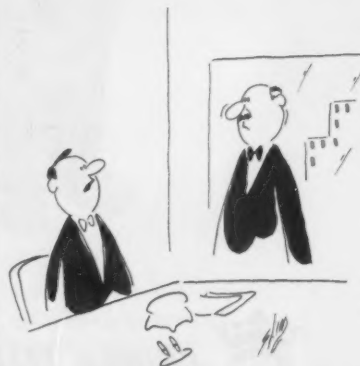
Fee for the course is \$20 and includes coffee breaks, lunch both days, dinner on the first night, and all course materials.

### Evansville P.A.'s Hold Educational Session

A recent meeting of the Evansville Purchasing Agents Association was devoted to a discussion of the topic "Employees On The Job, Growth, and Progress." Guest speaker for the evening was Allan C. Siebers, director of personnel development, Mead Johnson & Company.

A proposed purchasing course to be started at Evansville College during the Spring of 1961 was also discussed by Millard Pace of the college staff.

Alfred F. Riecken, Orr Iron Company Inc., president of the Association, presided at the meeting.



"I got a good price on paper clips, but I had to take a boat load."

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For More Facts About Ad on Facing Page Write in No. 254→



## TOWMOTOR'S ON THE MOVE

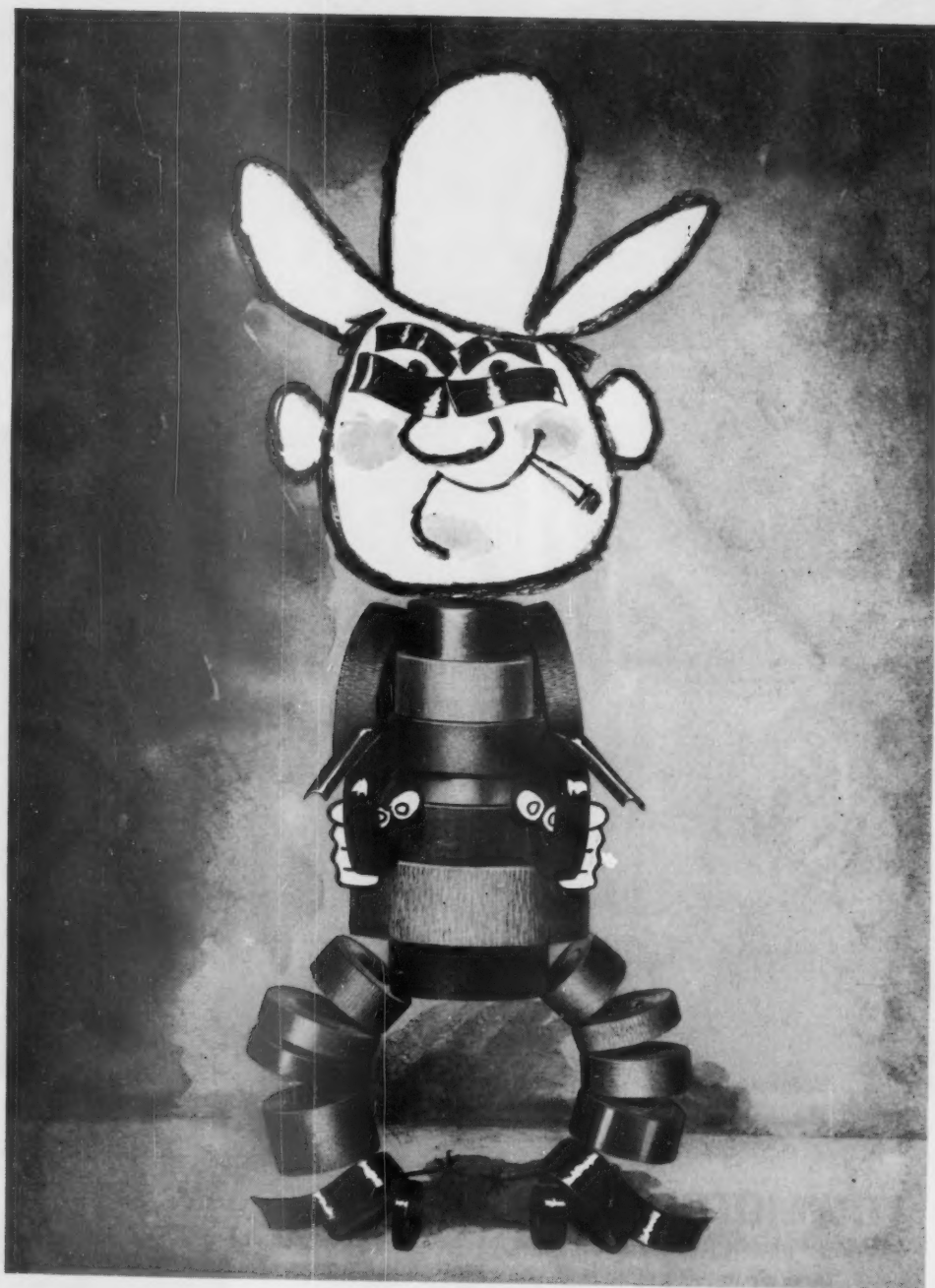
—in more plants, in more ways, with more money-making features. On the move, handling more materials, gaining lost storage, speeding distribution. On the move, raising productivity, lowering costs, increasing profits. Get going with Towmotor fork lift trucks and carriers—made only by TOWMOTOR CORPORATION, CLEVELAND 12, OHIO.



*New slanted "full-vision" cowl that makes load pick-up unusually fast and easy, is an outstanding feature of Towmotor Stream-Liner Series fork lift trucks (above). Load capacities, 3000 to 5000 lbs. Diagram below shows how operator is able to see within 12" of the heel of forks.*



**NOTICE:** a tough newcomer to an old frontier!



**Polyken Pete, the "Paper Tape Kid"!**



# WANTED by YOU!

**...for sealing...masking...bundling...and packaging**

**Aliases:** Flat-Back Flint, Crepe-Back Cantrell, Sealing Slade, The Masking Marvel, Bundling Bascomb, Pack-Horse Pecos, etc.

**Description:** Wears 8 different guises, depending on the caper he's cooking up:

#620: General purpose crepe masking tape  
#621: High temperature crepe masking tape  
#640: General purpose flat-back paper tape  
#641: High-strength flat-back paper tape

#642: Waterproof carton-sealing paper tape  
#643: Colored printable flat-back paper tape  
#645: Colored produce packaging flat-back paper tape  
#660: Surface protection paper tape

**Identifying Marks:** Recognized by firm, easily handled rolls. Sometimes makes appearance under assorted colors.

**Occupation:** Seals, masks, bundles, packages. Found in any climate, operating under toughest conditions. Bound to show up wherever there's work to be done, dirty or otherwise.

**Record:** Pretty amazing. Leaves a trail of thoroughly wrapped-up jobs wherever he's been. Looks like there's no stopping him.

**Caution:** This character is tough and he's sticky. Each of his 8 personalities likes to get the job over and done with fast and effectively. One more thing: He's pressure-sensitive . . . so show no mercy.

**Attention!** If you want further information concerning this 8-sided rascal, notify us immediately. Our men are by far the best-trained tape engineers in the industry. They're experienced specialists who enjoy solving problems involving quality Paper-Back Tapes and their top-rated Cloth and Plastic country cousins. Now you can consolidate purchases of all tapes for quantity discount. Mail the coupon today!

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Polyken Sales Division

MAIL NOW FOR FREE SAMPLES

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309 W. Jackson Blvd., Chicago 6, Illinois

Please send me a free trial sample of:

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<input type="checkbox"/> #621	<input type="checkbox"/> #642	<input type="checkbox"/> #660
<input type="checkbox"/> #640	<input type="checkbox"/> #643	

Tapes will be used for \_\_\_\_\_

Name \_\_\_\_\_

Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

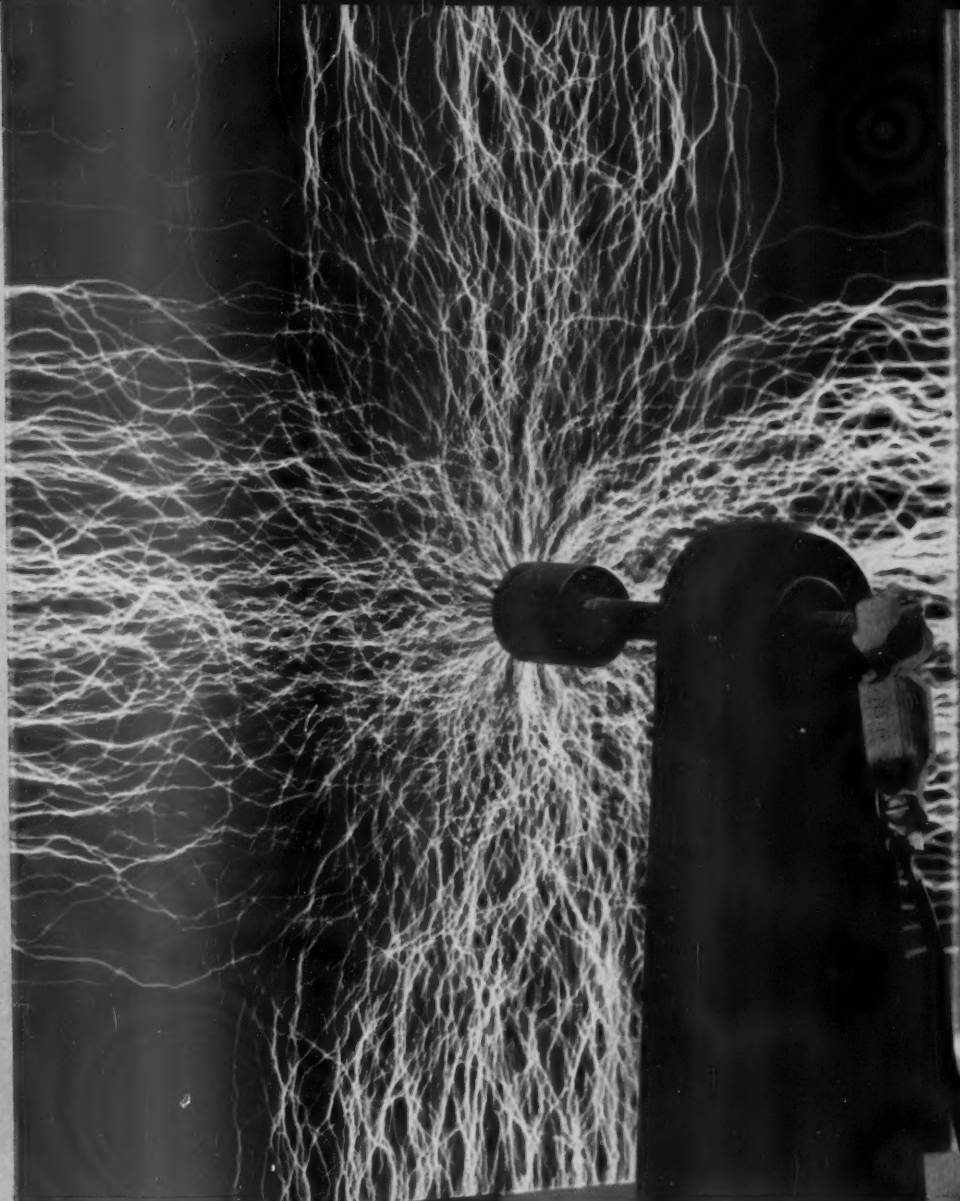
# FORMICA®

puts the

plus<sup>+</sup>

in your

products



<sup>+</sup>with electrical grades that do more than just insulate

FORMICA ELECTRICAL GRADES	
Grade	Description
XXXP-36/paper-phenolic	High IR, cold punch to 1/16" for circuitry and non-circuitry applications.
XXXP-100FR/paper-phenolic	New flame retardant grade with high IR. Cold punch to 1/16". For commercial circuitry.
YN-25/nylon-phenolic	Low electrical loss for circuitry and non-circuitry applications requiring tougher material than XXXP-36.
FF-60/glass-melamine	Retains high dielectric strength after prolonged exposure to moisture. High impact.
FF-91/glass-epoxy	Low electrical loss for circuitry applications. High mechanical strength. Good machining.
FF-93-FR/glass-epoxy	New flame retardant grade with high IR and high mechanical strength. Good machining.
FF-95/glass-epoxy	Maintains good flexural strength at elevated temperatures; high IR.
G-7-1/glass-silicone	Heat resistant, low electrical loss, moisture resistant for non-circuitry electrical/electronic applications.
EP-37/paper-epoxy	Flame retardant/self-extinguishing with superior dimensional stability for circuitry applications.

Check the chart. Note how Formica electrical grades combine insulation with mechanical and/or chemical properties. The extra property values of these and other Formica industrial plastics can put plus performance and added sales power into your products. For detailed information, write for data sheets today.

Your Fabricator and Distributor of Industrial Formica can put the plus in your products *but quickly*—with fast, local delivery of Formica fabricated parts and materials. Check the list on opposite page . . . phone your fabricator now.

**FORMICA CORPORATION, 4565 Spring Grove Ave., Cincinnati 32, Ohio**

subsidiary of

**CYANAMID**



Faster Delivery of  
**FORMICA®**  
 Sheets and Fabricated  
 Parts from your

FABRICATOR AND DISTRIBUTOR OF



<b>ALABAMA:</b>	Birmingham	.....	Vulcan Electric Distrs.
<b>ARIZONA:</b>	Phoenix	.....	Kiva Sales Co. Inc.
<b>CALIFORNIA:</b>	North Hollywood	.....	Plastronics
	El Cajon	.....	Dutton Mfg. Co.
	Los Angeles	.....	Conroy & Knowlton, Inc.
		.....	Lead Insulator Corp.
		.....	Tri-State Supply Co.
		.....	Plastic Stamping, Inc. (Pomona)
	San Francisco	.....	Laminated Fabricators
		.....	Tri-State Supply Corp.
	San Diego	.....	Ridout & Co.
<b>COLORADO:</b>	Denver	.....	Plasticrafts, Inc.
<b>CONNECTICUT:</b>	Unionville	.....	Fabricon Corp.
<b>DISTRICT OF COLUMBIA:</b>	Arlington	.....	Milton H. Brooks & Son
<b>FLORIDA:</b>	Miami	.....	Modern Plastics
<b>GEORGIA:</b>	Atlanta	.....	Southeastern Plastic Sales Co.
<b>ILLINOIS:</b>	Chicago	.....	Colonial Kolonite Co.
		.....	Tingstol Co.
<b>INDIANA:</b>	Indianapolis	.....	Hyaline Plastics Corp.
	Michigan City	.....	Television Associates, Inc.
<b>KENTUCKY:</b>	Louisville	.....	C. Lee Cook Co.
<b>LOUISIANA:</b>	New Orleans	.....	Prager, Inc.
<b>MARYLAND:</b>	Baltimore	.....	Diercraft
<b>MASSACHUSETTS:</b>	Boston	.....	Insulating Fabricators of N.E.
<b>MICHIGAN:</b>	Dearborn	.....	F. B. Wright Co.
	Detroit	.....	Chas. R. Mueller & Sons
	Grand Rapids	.....	Novel Products
	Jackson	.....	Plastigage Corp.
<b>MINNESOTA:</b>	Minneapolis	.....	Special Parts, Inc.
	St. Paul	.....	Plastics, Inc.
<b>MISSOURI:</b>	Kansas City	.....	Brook Beatty Co.
	St. Louis	.....	Harris Mfg. Co.
<b>NEW JERSEY:</b>	East Rutherford	.....	Insulating Fabricators, Inc.
<b>NEW MEXICO:</b>	Albuquerque	.....	Plasticrafts, Inc.
<b>NEW YORK:</b>	Buffalo	.....	Curbell, Inc.
	Long Island	.....	Thomas J. Long, Inc.
	New York City	.....	Commercial Plastics & Supply Co.
	Richmond Hill, Queens	.....	Comco Plastics
	Poughkeepsie	.....	Industrial Plastic Supply
	Rochester	.....	General Circuits, Inc.
	Syosset, L. I.	.....	Frank Products
	West Nyack	.....	Plasticraft Products Corp.
<b>NORTH CAROLINA:</b>	Gibsonville	.....	Engineered Plastics, Inc.
<b>SOUTH CAROLINA:</b>	Spartanburg	.....	Insulating Fabricators, Inc.
<b>OHIO:</b>	Cleveland	.....	Jaco Products Co.
	Cincinnati	.....	Durham Plastics, Inc.
	Columbus	.....	Dayton Plastics, Inc.
	Dayton	.....	Dayton Plastics, Inc.
<b>OKLAHOMA:</b>	Tulsa	.....	Ideal Specialty Co.
<b>PENNSYLVANIA:</b>	Harrisburg	.....	D. & H. Dist. Co.
	Philadelphia	.....	Laminated Materials
		.....	Mascher & Lippincott
	Pittsburgh	.....	Earl B. Beach Co.
<b>TENNESSEE:</b>	Memphis	.....	Norrell, Inc.
	Nashville	.....	Plastic Fabricators Co.
<b>TEXAS:</b>	Fort Worth	.....	Plastolite Engineering Co.
		.....	Service Engineers
		.....	Standard Parts & Equipment Corp.
	Houston	.....	Houston Gasket & Packing
		.....	Replacement Parts Co.
<b>UTAH:</b>	So. Salt Lake City	.....	Plastic Products of Utah
<b>VIRGINIA:</b>	Bristol	.....	Williams Co.
	Norfolk	.....	Norva Plastics
	Richmond	.....	Plywood Center
<b>WASHINGTON:</b>	Seattle	.....	Tri-State Supply Co.
<b>WISCONSIN:</b>	Milwaukee	.....	General Plastics, Inc.
	West Allis	.....	Colonial Kolonite Co.

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 on Information Card—Page 32

FEBRUARY 27, 1961

## Association News

### Carolinas Group Holds Purchasing School

The Fifth Annual "Local Government Purchasing School", jointly sponsored by the Carolinas Association of Governmental Purchasing and the Institute of Government, will be held at the Institute in Chapel Hill, N. C. on March 2 and 3.

There will be eight sessions grouped under four major topics: "Purchasing and Financial Management," "Better Buying," "Management of the Purchasing Office," and "Lowering Transportation Costs."

All public purchasing officials are invited to attend the two-day event.

### North Jersey P.A.'s Tour Local Plant

Members of the Purchasing Agents Association of North Jersey joined with the American Production and Inventory Control Society in a tour of Wallace & Tiernan Inc., Belleville, N. J.

The visitors looked over the manufacturing facilities in the three industrial fields in which this firm operates: chemical, pharmaceutical, and mechanical.

A social hour and dinner followed the plant tour. Among the speakers was Miss Irene Gordon, purchasing agent for Wallace & Tiernan and treasurer of the North Jersey Association. In her talk, Miss Gordon described the company's daily board of review meeting at which purchases are discussed and decisions reached regarding new equipment and other policy problems.

### Florida Conference Draws Record Number

The Seventh Annual "Buyer-Seller Management Conference," sponsored by the Purchasing Agents Association of Florida, was a large success. A record number attended and everyone went home with a great deal of

information and excitement.

One of the first speakers was Manuel Turner from the University of Florida. His subject was "Prepare Today to Meet Competition Tomorrow." Mr. Turner discussed the various study courses which are available for the ambitious purchasing agent.

Dr. Earle A. McIntyre, Florida Development Commission, gave the purchasing agents an insight into the great importance public relations should play in their daily business. He said "When handled properly, public relations can be extremely valuable in your personal development and advancement."

J. E. Clark, chairman of value analysis-standardization committee of the 7th District, spoke on "Vasco and How It Works." Clark implemented his talk with examples and illustrations of the function of value analysis and standardization.

"Purchasing Is A Profession" was the topic of Thor C. Laugesen, Anaconda Aluminum Co. Mr. Laugesen is vice chairman of the national committee for professional development in charge of the schools and colleges program. His talk clarified many doubtful points about study courses and outlined the long-range plan for making purchasing a full and recognized college course.

Robert Raitt, Belcher Oil Company, president of the Florida Association, presided at the meeting.

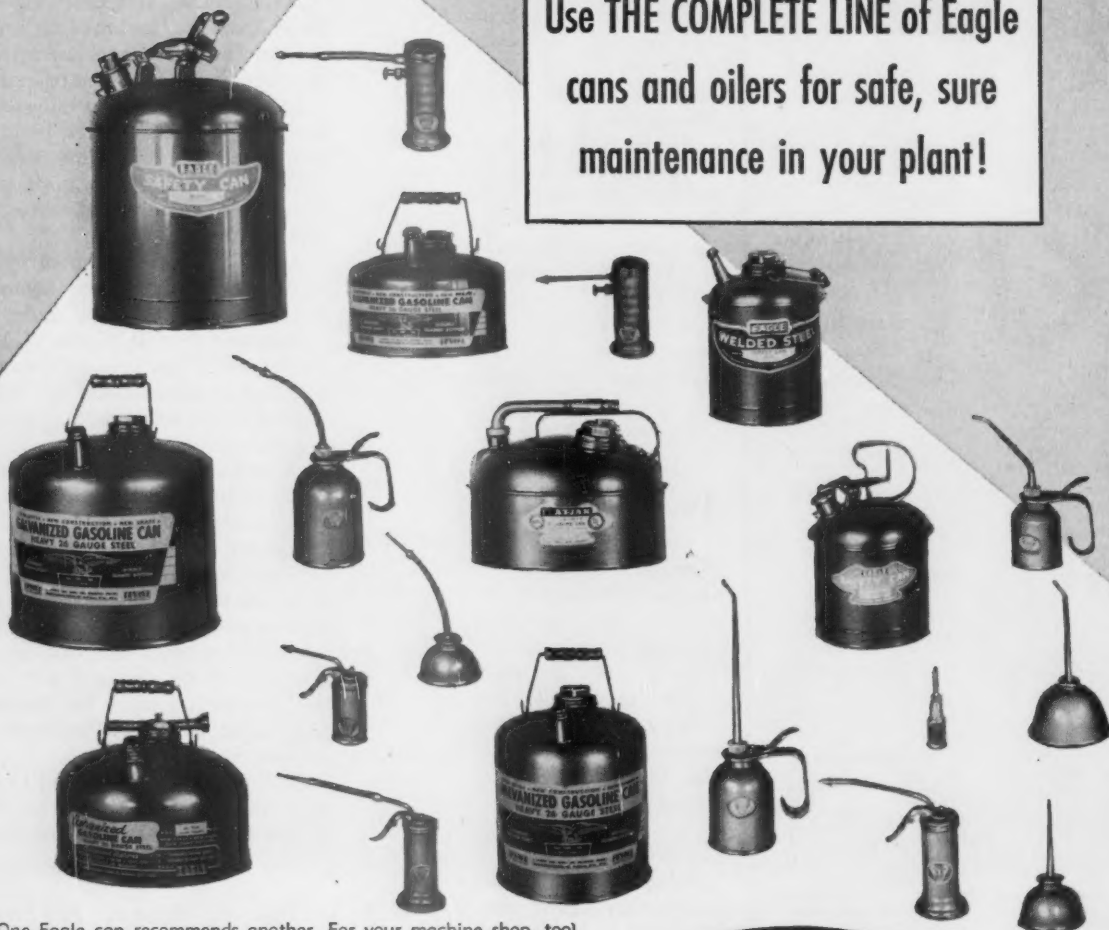


"Do you see any buyers in the future?"



# HERE'S HOW TO SAVE MORE MONEY!

Use THE COMPLETE LINE of Eagle cans and oilers for safe, sure maintenance in your plant!



One Eagle can recommends another. For your machine shop, tool kits, maintenance operations, there is an Eagle oiler, safety can, oil or gasoline can to fill the need. An Eagle is so indispensable! Eagle Safety Cans are Underwriters Laboratories and Factory Mutual approved. And Eagle pump oilers are guaranteed 5 years.

Use the ONE COMPLETE LINE . . . an Eagle oiler or can for every purpose.

Order the Complete Line NOW from your supplier.

Or write us for information.

Eagle products are stocked by leading suppliers in the U.S. and Canada.

Ask for the  
Complete Eagle  
Catalog  
IT'S FREE!



## EAGLE

Serving the Trade Since 1894

**MANUFACTURING CO., Wellsburg, West Virginia**

For More Facts Write No. 257 on Information Card—Page 32

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**PURCHASING**






## Stop looking for spring wire in large coils...it's here (*courtesy of Roebling*)

This is really an enormous availability — 3000 pounds of high carbon spring wire in a single, nonstop coil. You know what this means. Uninterrupted productivity. You make more of your products faster and, as with *any* length of Roebling spring wire, you make them better.

This, of course, is in addition to the already wide selection of Roebling wire in all kinds of sizes and gauges. Whatever you specify in spring wire — for quality — the word that comes first is Roebling.

For information on *any* size coil, ask

Roebling's Wire and Cold Rolled Steel Products Division, Trenton 2, New Jersey.

**ROEBLING**   
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 The Colorado Fuel and Iron Corporation



## This is the cooler that pioneered a trend

Just a little over a year ago no one ever saw a cooler like this. We call it the Wall-Mount, truly a Halsey Taylor first.

It mounts on the wall . . . no exposed fittings, no space behind cabinet to catch dirt or grime! Off the floor . . . room underneath for easy cleaning! The answer to maintenance-free installation and, like all Halsey Taylor fixtures, gives years of trouble-proof service.

The Halsey W. Taylor Co., Warren, Ohio



The Wall-Tite, big brother to the Wall-Mount. Fits tight to the wall.



Write for latest catalog, or see Sweet's or the Yellow Pages

THIS MARK OF LEADERSHIP IDENTIFIES THE MOST COMPLETE LINE OF MODERN DRINKING FIXTURES

263

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## Book Reviews

### Automation—Its Impact on Business and People

By Walter Buckingham

Harper & Brothers

\$4.50

This is a book on automation especially written for those who are non technically oriented in electronics and related sciences. The author attempts to evaluate the effect of automation on people and on society in general. In the last five years, automation has come into its own. The author points out that there were but a few dozen computer systems in 1955. In late 1960, there were 11,000 computers in use and 4500 more on order; two thirds of these machines are doing clerical and administrative work. Since much of purchasing is clerical or administrative, it is imperative that the purchasing executive become acquainted with the principles and problems of automation. This book could be a good start. Unfortunately, it does not discuss the materials management problems which will be the inevitable result of automation.

### Decision Models for Inventory Management

By Robert B. Fetter and Winston C. Dalleck

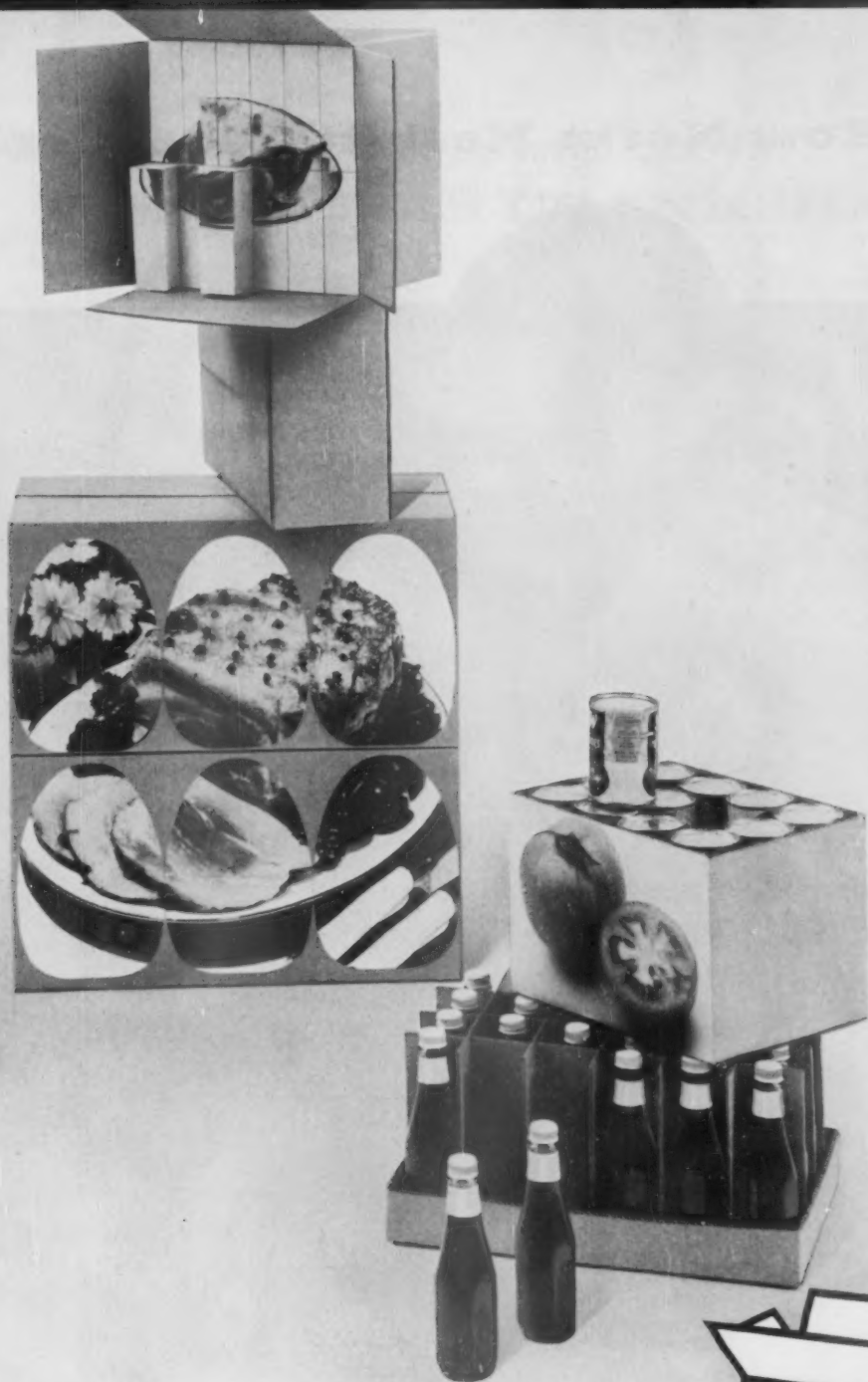
Richard D. Irwin, Inc

\$5.75

Almost every purchasing executive is familiar with the economic order quantity formula in which EOQ is assumed to vary with the square root of carrying cost and ordering cost. Variations of this formula have been published hundreds of times. So far, EOQ formulas have had relatively limited applications. They're difficult to use because it is somewhat of a chore to make the necessary calculations. In addition, they work well only in the relatively rare cases where demand varies in a regular pattern.

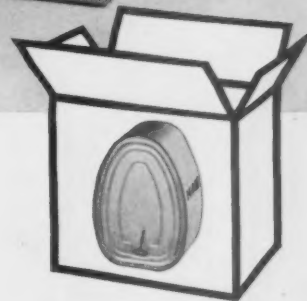
The authors of this book start with this basic example but they go much further. They set up mathematical models for inventory control which, when used with appropriate data on costs, (Please turn to page 166)

For More Facts About Ad on Facing Page Write in No. 261→



## Millions of meals in corrugated

From appetizer to dessert, every course in the American menu is rich with the variety of a thousand different dishes, served by the nation's legion of food producers. Many of these leading companies use boxes by Hinde & Dauch. And for good reason: They can rely on H&D to supply money-saving *corrugated containers in volume.*



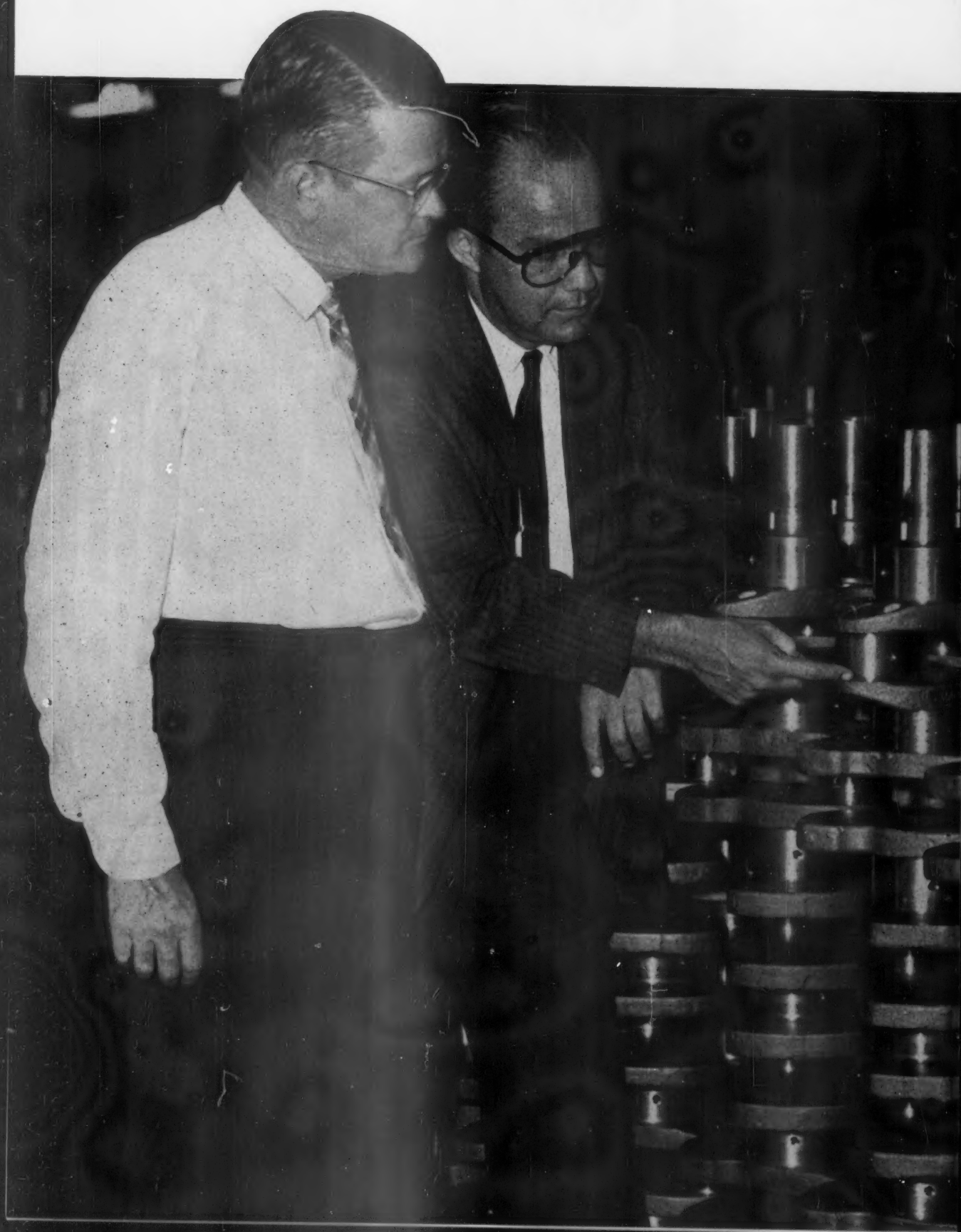
**West Virginia  
Pulp and Paper**

**Hinde & Dauch Division**

17 Plants • 42 Sales Offices • Sandusky, Ohio



## **How Norm Nesbitt and Allen Moore**





## teamed up to cut dressing costs 50% at ATLAS CRANKSHAFT

This is a good example of the way it sometimes pays to break a habit even when it's a pretty good habit.

At Atlas Crankshaft Corp., in Fostoria, Ohio, the dressing wheels that are used to keep big crankshaft grinding wheels at peak performance play a very important part in maintaining production at a high and constant volume. There was nothing really wrong with the 6" dressing wheels Atlas had been using for years. They did a pretty good job and usually lasted through an 8-hour day.

But Atlas' Purchasing Agent Norm Nesbitt wasn't content with "good enough". He wanted "better" and had his eye firmly fixed on no less than "best". He got hold of Bay State representative Allen Moore and told him to go to work on the problem.

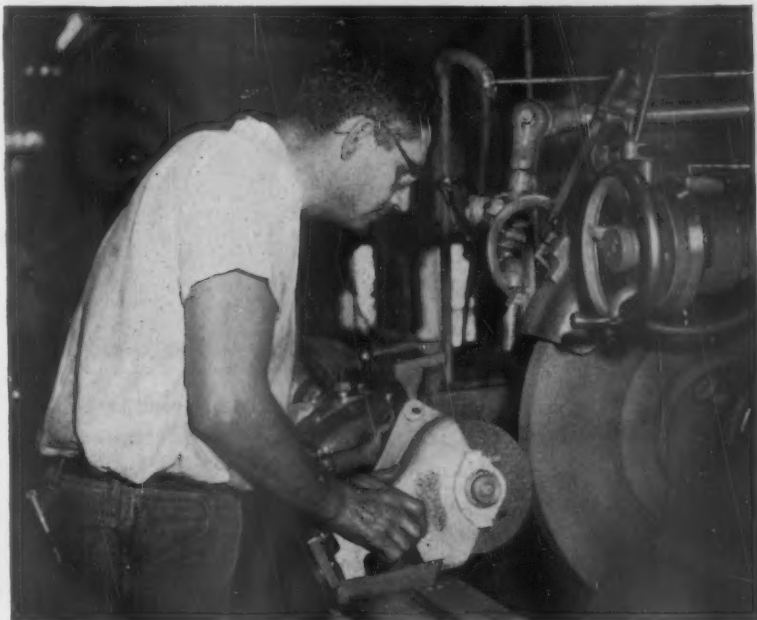
Moore is thoroughly accustomed to the kind of abrasive problems that require long and painstaking analysis. But this time, he found that it was a case of the solution being

so simple that nobody had thought of it.

He simply recommended a larger dressing wheel . . . an 8-inch wheel instead of the 6-inch that was being used. Both wheels were stubbed at 4" but buying the larger wheel reduced the cost per cubic inch of usable abrasive 50% and cut the number of dressing-wheel changes from one a day to one every two days.

Not all abrasive problems are as easily solved as this one, of course. But the point of this case is both simple and important: The most obvious improvements in grinding operations are often the most difficult to spot. Your Bay State distributor and our direct representatives are thoroughly trained to spot the obvious and to dig for what is not obvious. You can't lose and you may well gain substantially by just turning them loose to analyze your grinding operations. *Better grinding at lower cost . . . that is their business.*

Atlas operator Paul Huff sets new 8" dressing wheel against surface of big, crankshaft grinding wheel. 8" diameter dressing wheel lasts twice as long as 6" wheel because both are stubbed at 4" and 8" wheel costs half as much per cubic inch of usable abrasive.



Norman Nesbitt, left, as purchasing executive for Atlas Crankshaft Corp. for 15 years, has encountered, and successfully met, every purchasing problem "in the book" . . . and then some!

Allen Moore, abrasive specialist, with many years experience with distributors and grinding wheel manufacturers, has a broad knowledge of abrasive wheel applications. His Business Administration degree attests to his awareness of cost-savings importance.

# BAY STATE ABRASIVES



Bay State Abrasive Products Co., Westboro, Massachusetts.  
In Canada: Bay State Abrasive Products Co., (Canada) Ltd., Brantford, Ontario.  
Branch Offices: Chicago, Cleveland, Detroit, Los Angeles, Pittsburgh. Distributors: All principal cities.  
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# CONTINENTAL® WIRE PUTS THE "FORM" IN PERFORMANCE



Formability that permits difficult twists and bends . . . sustained fast production in coil after coil . . . smooth tight coatings that do not powder, flake or peel to jam machines. Such wire calls for consistent, uniform quality. You can get it at Continental, in sizes and finishes to meet most specifications—from 1/8" on down to 40 gauge, in various tempers and analyses, in low and medium low carbon steels. Special shapes, too. Why not let our mill technicians work with you on any problems you may have pertaining to wire fabrication. We may have the answer to a particular need. Write today for your FREE copy of our new wire manual.

*Wire Specialists for over half a century*

**CONTINENTAL STEEL**  
CORPORATION KOKOMO, INDIANA

PRODUCERS OF: Manufacturer's Wire in many sizes, tempers, and finishes including Galvanized, KOKOTE, Flame Sealed, Coppered, Tinned, Annealed, Liquid Finished, Bright and special shaped wire. Also Welded Wire Reinforcing and Galvanized Fabric, Nails, Continental Chain Link Fence, and other products.

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## Book Reviews

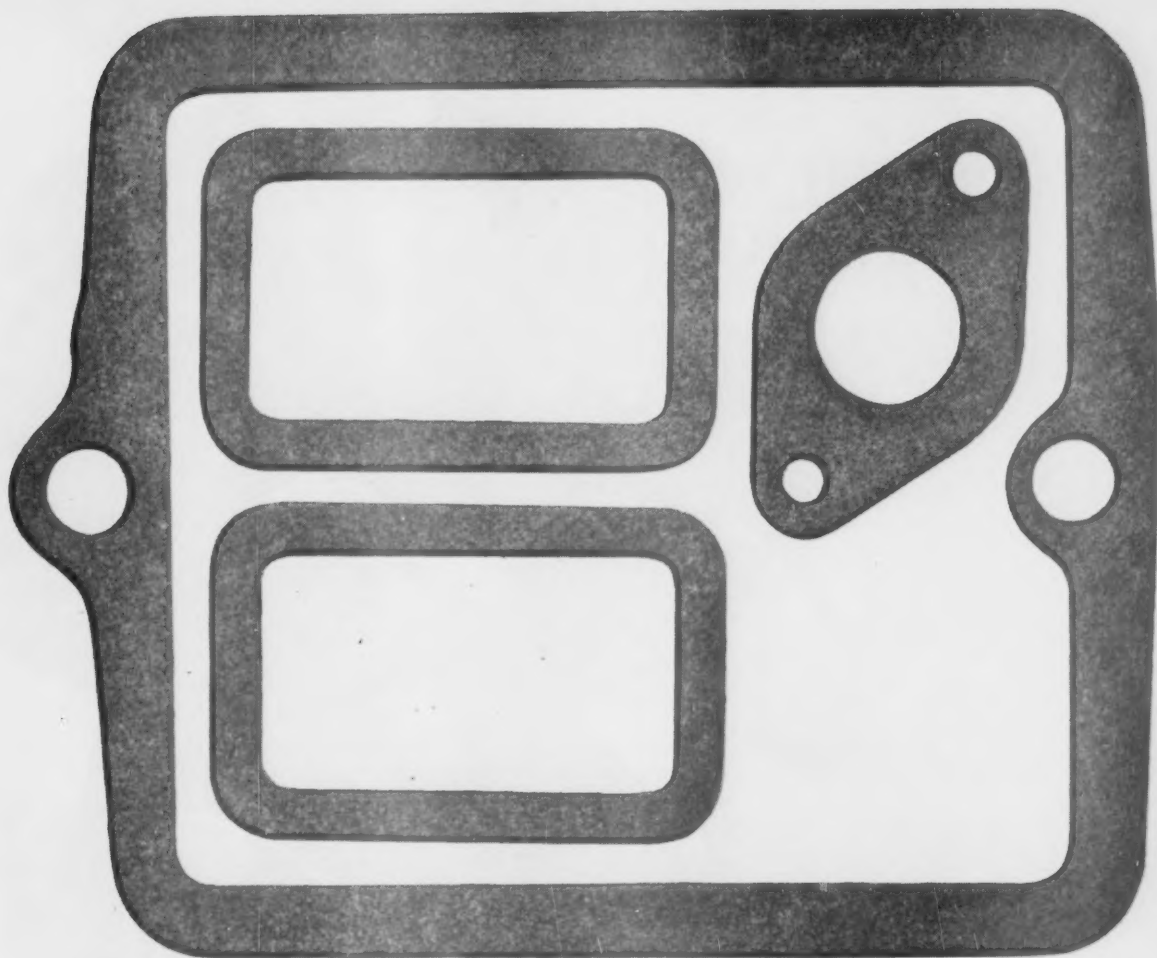
(Continued from page 162)

lead time, and demand, can provide ordering rules to give optimum inventories under almost any conditions. The book is particularly timely since many companies are now finding it practical to use such formulas for the first time. Until high speed computers came into common use in recent years, most companies would not have found it practical to make the calculations necessary for precise inventory control. Now the computer will do the job, and the theory presented by the authors can be translated into a control system that can boost profits for many with inventory management problems.

### Organized Executive Action

By Henry H. Albers  
John Wiley & Sons \$8.50

Purchasing executives interested in learning more about the theoretical background of the managerial process might well be interested in adding *Organized Executive Action*. The author has designed the book primarily for courses in general management in schools of business and liberal arts but it could serve equally well as general reading for the purchasing executive who has never been exposed to a course in management. All the basic principles of management are discussed including those related to decision-making, communication and leadership. In the preface the author states that "executive action is viewed as an organized (hierarchical) process which has a socio-psychological as well as a functional dynamics." The book is "interdisciplinary," that is, it draws on many fields of learning including operations research, information theory, group dynamics, economic theory, semantics, accounting budgeting, quality control, and electronic data processing. The author has researched his material carefully. While the book contains few new ideas in the field, it is a useful addition to the general literature on management.



***How a gasket user got better quality  
for less money through an  
Armstrong Approved Fabricator***

a sign of quality  
in materials • workmanship • service



The four gaskets shown here were originally cut from two different materials—the largest from Armstrong Accopac CN-705, the others from a treated paper material of a different thickness.

An Armstrong Approved Fabricator\* showed how a minor engineering change would permit all four gaskets to be the same thickness. Then, by “nesting” them, all could be cut from the higher quality Accopac—and at a saving of \$11 per thousand on each set.

Approved Fabricators are often able to make such money-saving or quality-improving suggestions. One reason is their years of specialized experience. Another is that they can make impartial recommendations on sealing materials because they handle the complete line of Armstrong resilient gaskets.

We think you'll find Armstrong Approved Fabricators good people to do business with. Write to us for a complete list of their names. Armstrong Cork Company, Industrial Division, 9202 Dague Street, Lancaster, Pennsylvania.

\* Name on request

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on Following Page Write in No. 265→





# THE LOGIC OF PLACING YOUR SAFETY EYEWEAR BUSINESS WITH THE MAN FROM MSA...

**COMPLETE LINE SELECTION:** Mine Safety Appliances Company now supplies industry with a complete new line of eye and face protection. The numerous frames and styles and optional features available suit the needs and tastes of any individual, whether you're talking safety spectacles or fiber glass welding helmets.

Styling of the new M-S-A<sup>®</sup> Sightgard line is exclusive. Extensive. Complete. We provide clear acetate frames. Metal frames. Frames of plastic on metal. Three solid colors: Flesh, ebony and smoke. Or ebony on crystal. With side shields. Without. Rigid or adjustable nose pads. Universal bridge. And lenses, welding plates and plastic cover plates enough to meet every eye care need.

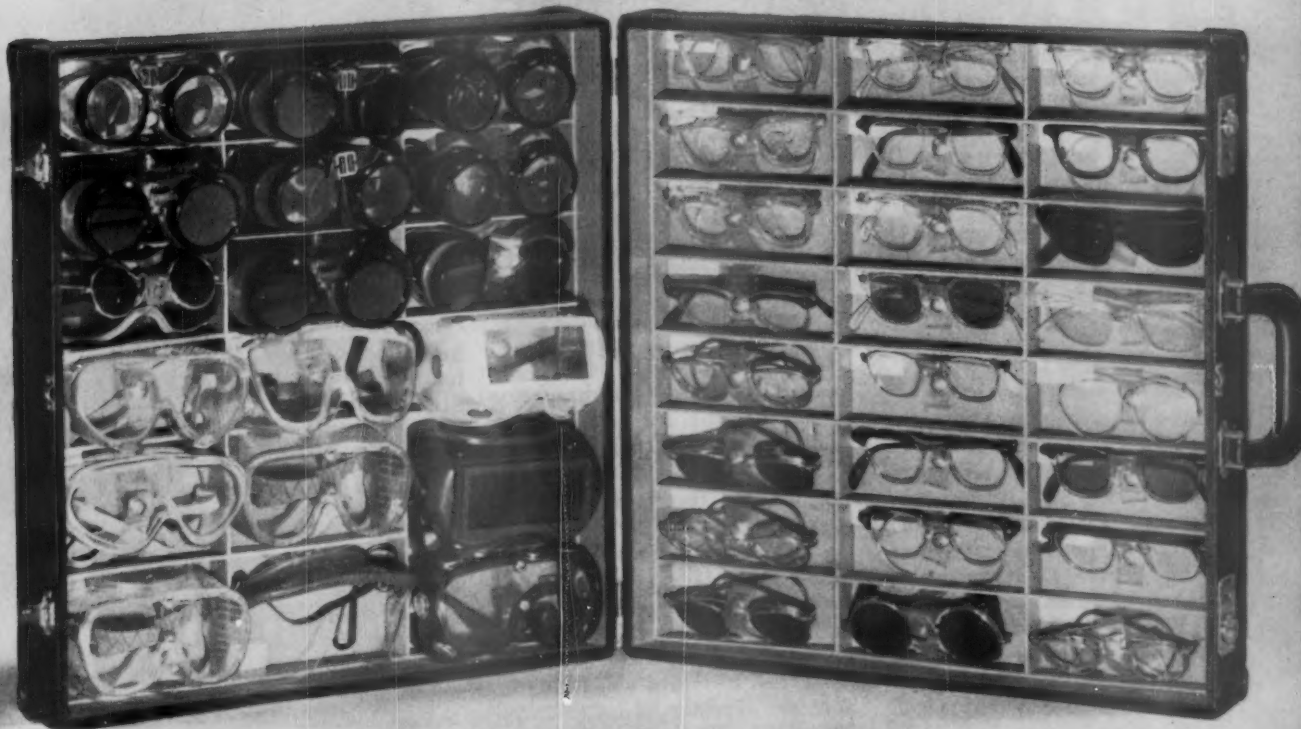
**Here then is a truly FULL line.** The selectivity it presents to you . . . the unbiased recommendations it makes possible for us . . . brings an added measure of value to any item you care to choose from MSA.

Our new 36-page guide on this subject is also complete in every respect. We'd like very much for you to have one.

**MSA**

*MSA Backs Up Its Label with  
Selection • Quality • Research • Experience*

**Mine Safety Appliances Company**  
Pittsburgh 8, Pennsylvania



# Purchasing People In The News

(Continued from page 52)

Appointment of **Frank W. Kay** to the post of director of purchasing has been announced by **Fischer & Porter Co., Warminster, Pa.** Before coming to the company in



Frank W. Kay

1950 Mr. Kay was an estimator for the Earle Gear and Machine Company. He majored in mechanical engineering at the Drexel Institute of Technology.

The **Connecticut Light and Power Company, Waterbury, Conn.**, has appointed **Herbert W. Sears** as purchasing agent. He succeeds **Frank M. Reinhold** who has retired. Mr. Sears joined CL&P in 1941 in the stores department at Waterbury and, in 1946, he was assigned to the purchasing department. Two years later he was made purchasing assistant, the position he has held until now. He has a B.S. in business administration from Boston University.

Three purchasing executives of the **Kellogg Company, Battle Creek, Mich.**, have been promoted.

**Norman F. Rabe** has been named manager of industrial purchasing; **Victor E. Kronmeyer**, manager of grain procurement; and **Ferris F. Purdy**, assistant manager of industrial purchasing.

Mr. Rabe has been assistant manager of industrial purchasing

since 1959. Before that he had been manager of cost engineering at **Minneapolis Moline Power Implement Company**. Prior to that, he was purchasing agent at **Oliver Corporation**. Mr. Kronmeyer, who has been assistant manager of grain procurement since 1959, came to Kellogg in 1940 as a member of the accounting department where he handled property records and audited grain purchases. He has been in the purchasing department since 1946. Mr. Purdy has been a purchasing supervisor since 1959. He was Kellogg's Omaha, Nebr. plant purchasing agent from 1945 to 1952, and spent some time at the company's San Leandro, Calif. plant while it was under construction.

**Robert Halder**, has been appointed purchasing agent for **Wausau Paper Mills Company, Bro-**



Robert Halder

kaw, Wisc. Mr. Halder has been safety director for the past 13 years.

**Ralph M. Hayward** has been named director of purchasing for the **Merck Chemical Division, Merck & Co., Inc., Rahway, N. J.** He replaces **Fred G. Schmitt**, who has been appointed director of materials management development. Mr. Hayward was formerly assistant director of purchasing,

and has occupied production, engineering and research positions in the company. He is a graduate of M.I.T.

**Standard Oil Company, Cleveland, Ohio.** has named **James R. Cross**, as procurement engineer in the purchasing division. He succeeds **Nelson Salathe** who left the company. Mr. Cross joined Sohio in 1949 after receiving a Bachelor's Degree in Petroleum



James R. Cross

Refining Engineering from the Colorado School of Mines. His work with the company has been focused on the design and operation of utilities systems in all of the company's refineries. He has spent much of his time in both the contractors' offices and at the refineries during construction and start-up.

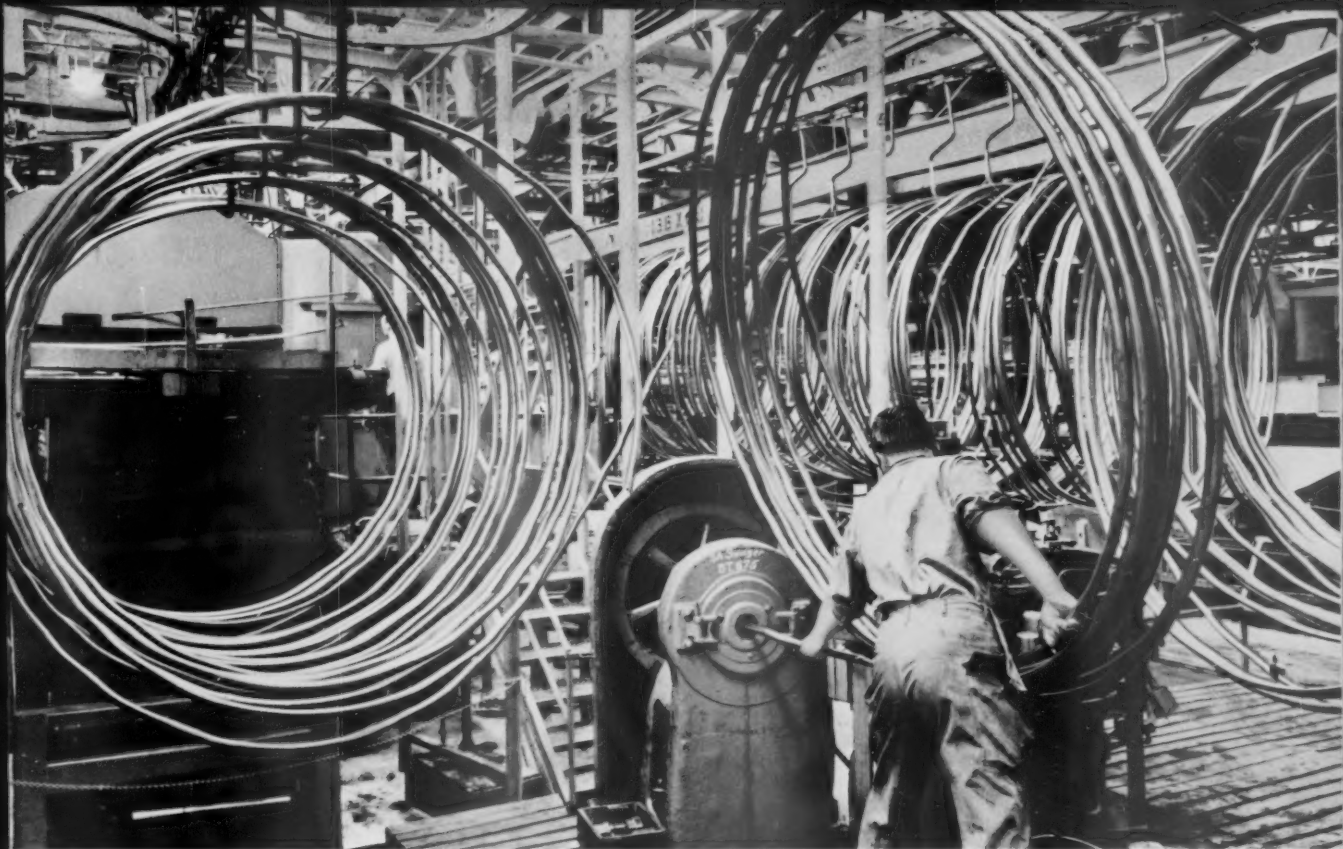
For retirees and run by a retiree, the firm of **Sam A. Snyder, Inc., Brookville Road at Leland Street, Washington 15, D. C.**, provides counseling in government supply.

Services of former federal officials rich in managerial proficiency and technical know-how are offered through the new firm on a contract basis.

A customer the new firm is after: the small businessman who wants to trade with the government but cannot employ a full-

(Please turn to page 174)

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things you should know about

## WOLVERINE TUBE

You know what they say—about change being the father of progress.

Well, that's the way it is at Wolverine Tube and we'd like to tell you about some of the new things going on at Wolverine.

For example, Wolverine recently completed a multi-million dollar modernization program at its Detroit, Michigan plant to serve its customers faster and better. New machinery and new tube-making techniques have made this plant one of the most modern in North America. Wolverine also operates large, modern plants in Decatur, Alabama and London, Canada.

There are new things afoot metalwise at Wolverine, too. In addition to copper and aluminum, Wolverine Tube now works in such metals as titanium, zirconium, columbium, tantalum and molybdenum. Wolverine considers this work so important that it has opened a new plant in Inkster, Michigan (Suburb of Detroit) devoted solely to manufacturing and development of these special metals . . . with specific emphasis on titanium and zirconium. It's the result of an extensive research program started many years ago, and it gives Wolverine customers a big edge when they require an experienced tubing and fabrication source for tomorrow's metals—TODAY.

Also, to insure top-flight sales service, Wolverine has expanded its nationwide sales staff to include a number of highly trained Heat Transfer Specialists. These men, along with other members of Wolverine's Field Engineering Service, are specialists in all phases of tubing selection and application, particularly in the field of heat transfer. Their services are available at all times . . . you only have to ask.

So . . . if your company is looking for the finest of tubing and the finest of service, you'll find both at Wolverine Tube where "improvement is a continuing program".



**WOLVERINE TUBE**

DIVISION OF

**Calumet & Hecla, Inc.**

DEPT. J, 17250 SOUTHFIELD RD., ALLEN PARK, MICH.

Manufacturers of Quality-Controlled Tubing

PLANTS IN DETROIT, MICHIGAN AND DECATUR, ALABAMA  
SALES OFFICES IN PRINCIPAL CITIES



# BUY WOLVERINE HEAT EXCHANGER TUBE . . . the product of EXPERIENCE

Experience, dependability, engineering, research — if these are the things you look for when specifying heat exchanger tube you'll find them—in full measure—at Wolverine Tube. You'll find, in addition, a wide selection of tubing types—each designed to help you increase heat transfer efficiency. These tubes are illustrated and described on this page. You can choose any . . . or all of them . . . secure in the knowledge that no finer tubing is made. May we have your next order?

## PRIME SURFACE TUBE

Wolverine prime surface heat exchanger tube is available in a wide range of sizes in copper, copper alloys and aluminum alloys. It is produced to ASTM Specifications B-111.



## DUPLEX PRIME SURFACE TUBE

Composed of inner and outer tubes of dissimilar metals this tubing is specifically designed to handle two different corrosive conditions at the same time. The metal combinations can be those required to combat your corrosion problems.

## WOLVERINE TRUFIN®—THE INTEGRALLY FINNED TUBE

Wolverine Trufin — the original integrally finned tube is manufactured in 7 different types. It is available in external helical low or high fin form or with internal, longitudinal fins. Your Wolverine Sales representative will give you the *complete* story — just ask him next time he calls.



## WOLVERINE U-BEND PALLETS

Here is real convenience. Working to your specifications, Wolverine prefabricates these tubes and ships them to you in disposable box-type pallets—in the exact order of unit installation. They're real time savers that also help you reduce tube inventory. Wolverine U-bends are available in both finned or prime surface form.



## WOLVERINE FIELD ENGINEERING SERVICE



This is a Wolverine "extra"—a staff of highly trained tubing technicians, ready at all time to help you solve heat transfer problems dealing with tubing alloys, corrosion or design. Just ask for their services . . . there is no obligation.



**WOLVERINE TUBE**

DIVISION OF

**Calumet & Hecla, Inc.**

DEPT. J, 17250 SOUTHFIELD RD., ALLEN PARK, MICH.

PLANTS IN DETROIT, MICHIGAN AND DECATUR, ALABAMA.

SALES OFFICES IN PRINCIPAL CITIES

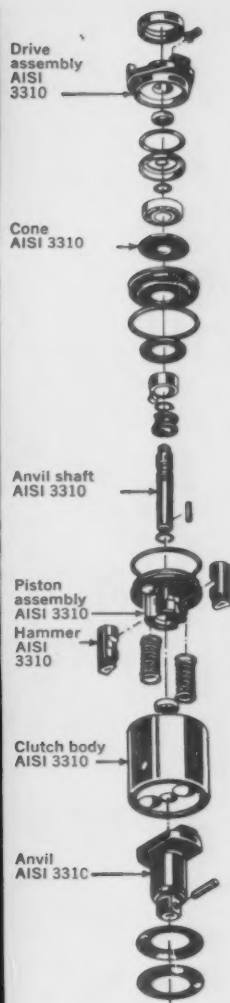
Wolverine Trufin is available in Canada through the Unifin Tube Division, London, Ontario.





Strong, tough Nickel alloy steel parts stand up to severe shock as Gardner-

Denver impact wrench brings nut-and-bolt assembly up tight as a weld.



Exploded view of Gardner-Denver Model 18B-9 impact wrench reveals vital parts made from AISI 3310 Nickel steel for impact resistance.

## Hard-hitting impact wrench lasts longer, thanks to 3½% Nickel alloy steel parts

Each time the socket slams against the faces of a big square or hex nut, seven vital parts of this Gardner-Denver impact wrench sustain the same sharp, powerful blow they deliver.

For built-in resistance to this repeated wear, shock-loading and torsional stress, engineers at Gardner-Denver specify AISI 3310 alloy steel (3½% Nickel) for all seven components that bear the full brunt of this battering:

- Drive assembly
- Cone
- Anvil shaft
- Piston assembly
- Hammer
- Clutch body
- Anvil

All these parts, made from carburized and hardened 3½% Nickel alloy steel, develop a hard, wear-resistant case backed up by a strong, tough core for resistance to countless shocks.

**Typical core properties** developed by heat-treated AISI 3310 steel:

Tensile strength.....	170,000 psi
Yield point, min.....	140,000 psi
Elongation.....	15% in 2"
Reduction in area.....	60%
Brinell hardness.....	360

When you design, order, or use heavily stressed machine components, remember that Nickel alloy steels take the tough jobs in stride. For engineering data to help you select the best materials for specific applications, just write. We'll be glad to help.

THE INTERNATIONAL NICKEL COMPANY, INC.

67 Wall Street

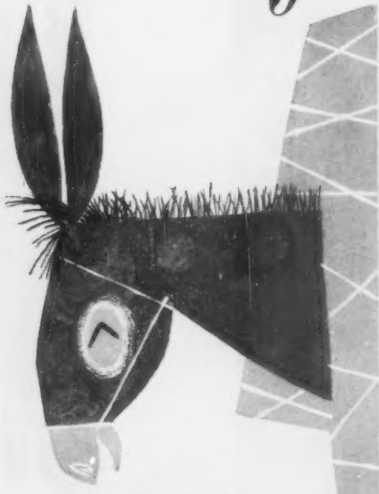


New York 5, N. Y.

**INCO NICKEL**  
NICKEL MAKES STEEL PERFORM BETTER LONGER

VALUED FOR

# Economy



**alloy slings**



Cut chain costs! Gain the economies of longer service and a better safety record with TM Alloy Slings. Taylor's sure-grip Tayco Hooks and complete heat-treating are strong contributing factors to this economy. Factory-assembled. Test Certificate furnished. Call your distributor, steel warehouse, hardware wholesaler or write for Bulletin 14A today.

**S. G. TAYLOR CHAIN CO., Inc.**  
Plants: Hammond, Indiana  
3505 Smallman St., Pittsburgh, Pa.

*Prompt repairs on alloy slings  
in both plants.*

**Taylor  
made  
CHAIN** SINCE 1873

For More Facts Write No. 273  
on Information Card—Page 32

## Purchasing People

(Continued from page 170)

time expert on government procurement.

**Sam A. Snyder**, the new organization's founder, is a retiree of the federal government with 43 years service behind him. At retirement he was a special assistant to the commissioner of the Federal Supply Service, General Services Administration, Washington, D. C.

**Nease Chemical Company, Inc., State College, Pa.**, has named **William F. Kosik** purchasing agent. Mr. Kosik was formerly with Ciba Corp. as purchasing agent of chemical raw materials, packaging, office and laboratory supplies and equipment. He is a graduate of the Navy Quartermasters School, Bainbridge, Md., and of the Electronics Operators School, Bremerton, Wash.

Changes in the purchasing department of the **Armco Division, Armco Steel Corporation, Middletown, Ohio**, have been announced.

**Eugene R. Coker** has been named a purchasing agent for the Division. He was formerly an assistant purchasing agent. In the new position he will continue to



E. R. Coker



W. M. Schuck

be responsible for purchases of construction services, equipment, and heavy equipment spare parts.

**John M. Leighton**, who has been active with Armco for forty-two years, has retired as supervising purchasing agent.

**William M. Schuck**, assistant to the director of purchases, will assume the responsibility of purchasing ferro-alloys, an assignment formerly handled by Mr. Leighton.

## GEARING FOR PROFITS?

*Check Your Gear & Rack Requirements with Brown First!*

The direct action of sending prints with a request for quotation costs you nothing and may mean new savings for you in your gear purchases.

Send for our explanatory brochure  
"Gearing For Profits."



**BRAUN  
GEAR COMPANY**  
243 Richmond Street  
Brooklyn 8, New York

For More Facts Write No. 269  
on Information Card—Page 32

Cuisine Exquise... Dans  
Une Atmosphere Elegante



575 Park Avenue at 63rd St.  
NEW YORK

Lunch and Dinner Reservations  
Michel: TEmpleton 8-6490

For More Facts About Ad  
on Facing Page Write in No. 270→  
**PURCHASING**



## Cuts 1-inch bar stock in 23 seconds flat!

New Skil Model 701 . . . world's only portable electric, metal-cutting hacksaw!

This all-new, Skil Model 701 Recipro Saw is the only portable power saw made specifically for fastest cutting of *any* metal—from hardest alloys (including stainless) to mild steels and non-ferrous metals. It's the one saw you need for every metal cutting job that requires a portable tool for cut-off or pattern work.

Model 701 has 2 speeds—1000 and 1400 strokes per minute—for extremely fast cutting of different gauges and densities of metals, with longest blade life. Standard

equipment includes steel carrying case and 4 assorted blades.

New improved version of Skil's *all-purpose* Model 700 Recipro Saw also available. Has 2600 and 3500 spm speeds for wood, composition, plastic and routine metal cutting jobs.

For more information, call your Skil distributor. Look under "Tools-Electric" in the Yellow Pages. Or write: Skil Corporation, Dept. 125B, 5033 Elston Avenue, Chicago 30, Ill.

### Skil Model 701 Recipro Saw makes toughest metal cuts fast

**EXAMPLE—Model 701 cuts  $\frac{1}{4}$ " x  $1\frac{1}{4}$ " stainless steel angle in 65 seconds!**

**EXAMPLE—Model 701 cuts 2" cast iron pipe in 105 seconds!**

And because the Skil Model 701 has the *right* speed for any metal-cutting job, blades last longer—you save more money!



... and SKILSAW POWER TOOLS



# Reduce your assembled costs with new **Spring-Flow<sup>®</sup>** packaging



... more efficient  
handling, storing,  
sorting, orienting,  
feeding, placing  
of springs for  
installation



To production planners, Spring-Flow packaging opens up a world of possibilities for assembling A.S.C.-made springs, small stampings, and wire forms into your products easier and faster. It solves many problems caused by intricate shapes, tangling, loss by spoilage; maintains critical tolerances, uniform quality; simplifies inventory control and storage.

To learn how Spring-Flow may solve your problem, contact the nearest A.S.C. Division, or write for Spring-Flow booklet giving additional information.

6004

## Associated Spring Corporation



General Offices: Bristol, Connecticut

Wallace Barnes Division, Bristol, Conn. and Syracuse, N. Y.

F. N. Manross and Sons Division, Bristol, Conn.

Dunbar Brothers Division, Bristol, Conn.

Wallace Barnes Steel Division, Bristol, Conn.

Canadian Subsidiary: Wallace Barnes Co., Ltd., Hamilton, Ont. and Montreal, Que. Puerto Rican Subsidiary: Associated Spring of Puerto Rico, Inc., Carolina, P.R.

Raymond Manufacturing Division, Corry, Penna.

Ohio Division, Dayton, Ohio

Cleveland Sales Office, Cleveland, Ohio

Chicago Sales Office, Chicago, Ill.

B-G-R Division, Plymouth and Ann Arbor, Mich.

Gibson Division, Mattoon, Ill.

Milwaukee Division, Milwaukee, Wis.

Seaboard Pacific Division, Gardena, Calif.



## Industry

**Crossett Paper Mills, Crossett, Ark.**, is nearing completion of a \$1,770,000 improvement project on its light weight kraft paper machine. This includes the installation of a new head box, new breaker stack, and four air driers. The program is designed to improve the quality of kraft paper from this machine and expand production volume by 15 tons per day. The changes will also make possible the manufacture of some new grades of light weight kraft paper.

**Federal Pacific Electric Company** is establishing a large six-plant complex to manufacture electrical switchgear in **Newark, N. J.** Heart of the operation will be a new half million dollar, 70,000-square foot switchgear final assembly plant, which will be fed components manufactured in the company's five other connecting plants. Among the switchgear

items to be produced in the complex will be low-voltage power breakers, high-voltage air circuit breakers, instruments and protective relays, indoor oil circuit breakers, switching assemblies, and high-voltage motor starters—as well as a complete line of both low-voltage metal enclosed and high-voltage metal clad switchgear assemblies.

**Astra Technical Instrument Corporation** will expand operations in additional space at 12930 Panama St., **Los Angeles 66, Calif.** Here they will concentrate on the design and manufacture of temperature measurement systems and components. Many new components and systems have required this additional area.

A new furnace processing plant has been opened in **San Antonio, Texas**, by **Stainless Processing division of Wall Colmonoy Corporation**. The new plant houses high production pit-type furnace facil-

ities which will handle parts up to 28-in. diameter by 35-in. high. The equipment is instrument controlled and used with pure, dry hydrogen atmosphere and other standard protective furnace atmospheres.

**Riegel Paper Corporation, New York, N. Y.**, has announced the formation of a product development group for folding cartons. The group will be responsible for evaluation and development of functional cartons, as well as the co-ordination of cartons and packaging machinery.

A multi-million-dollar expansion that almost doubles capacity for production of acrylate esters at the **Celanese Chemical Company plant in Pampa, Tex.**, has been completed.

The esters are highly versatile chemicals used in the manufacture of paints, coatings, polishes, paper, adhesives and many other products.



## Need a fast solution to a fastener problem?



### YOU GET INDIVIDUALIZED SERVICE FROM THOMPSON-BREMER

We are one of the few fully integrated manufacturers of Sems, lock washers, thread-cutting screws, terminals and cold-headed specialties. Since our engineering services and components manufacturing are together under one roof, we are particularly well able to give you fast, individualized service at competitive prices. We'll bid on your specials requirements, or fill orders for standard items on short notice from the extensive line of **EVERLOCK** products stocked by your local distributor. Send for catalog and samples or call your **EVERLOCK** representative.



Thompson-Bremer & Co.  
Division of  
American Machine  
& Foundry Company

### INDUSTRIAL FASTENERS

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**Thompson-Bremer & Co.**  
**Dept. 6110**  
 228 N. LaSalle St.,  
 Chicago 1, Ill.  
 Please send me \_\_\_\_\_ **EVERLOCK** fastener cata-  
 logs and \_\_\_\_\_ sample sets of **EVERLOCK** indus-  
 trial fasteners and cold-headed specialties.  
 Name \_\_\_\_\_ Title \_\_\_\_\_  
 Company \_\_\_\_\_  
 Street \_\_\_\_\_  
 City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_  
 .....

For More Facts Write No. 272 on Information Card—Page 32

# If there's a telephone near you, any steel in a hurry from

PORTLAND SERVICE CENTER



SEATTLE SERVICE CENTER



MOLINE SERVICE CENTER



ST. PAUL SERVICE CENTER



SAN FRANCISCO SERVICE CENTER



LOS ANGELES SERVICE CENTER



ST. LOUIS SERVICE CENTER



DALLAS SERVICE CENTER

**U. S. Steel Supply  
Division of  
United States Steel**



General Office:  
208 S. LaSalle St., Chicago 4, Ill.



HOUSTON SERVICE CENTER

# you can get **USS** U.S. Steel Supply

MILWAUKEE SERVICE CENTER



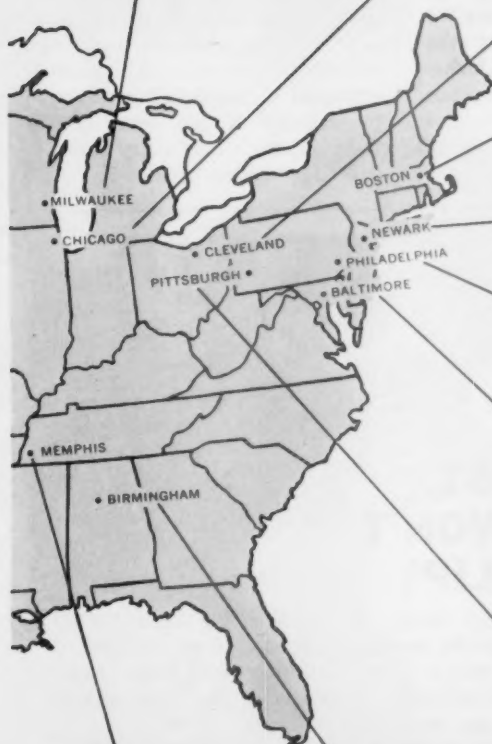
CHICAGO SERVICE CENTER



CLEVELAND SERVICE CENTER



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PHILADELPHIA SERVICE CENTER



MEMPHIS SERVICE CENTER



BIRMINGHAM SERVICE CENTER



PITTSBURGH SERVICE CENTER



BALTIMORE SERVICE CENTER

## Industry

The Carpenter Steel Company has tripled its Los Angeles area facilities with the opening of a new \$300,000 mill-branch warehouse and specialty steel service center. Designed to meet increasing needs for specialty steels and services in the Los Angeles and southern Calif. area, the new center comprises about 20,000 square feet of floor space. A full line of specialty tool, stainless, and alloy steels will be stocked. The center also offers complete technical service to steel users.

To provide a more complete and faster service for users of its flexible and liquid electrical insulation materials, Westinghouse Electric Corporation's Micarta division is expanding its nation-wide distribution system, with specialty insulation distributors in principal cities. Previously, most Micarta insulating products have been sold direct to customers or

through distributors of general electrical apparatus. A selected list of the company's present full-line distributors will be retained. The first specialty distributor signed up is Insulation Systems, Pittsburgh Pa.

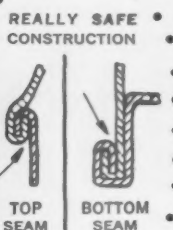
Monsanto Chemical Company is now supplying commercial quantities of nonyl phenol and dodecyl phenol from its Kearny, N. J., plant. The products, manufactured in recently completed alkyl phenol facilities, are widely used as intermediates in the manufacture of nonionic surfactants and are used to some extent in rubber chemicals and motor oil additives.

A \$3,000,000 technical center for the development of new uses for paper has been started by the St. Regis Paper Company, Clarks-town, N. Y. The 60,000 square foot, two-story research facility is scheduled for completion in October 1961.

Hercules Powder Company has announced a multimillion dollar expansion program at Hercules, Calif. The expansion includes new manufacturing facilities for producing methanol, formaldehyde, urea-formaldehyde concentrates, and slow nitrogen release urea-form for fertilizer applications. The newly completed program provides facilities for the production of eight million gallons of methanol per year, 50 million pounds of formaldehyde, and 11,000 tons of urea-formaldehyde compositions.

Ward Leonard Electric Co., Mount Vernon, N. Y. has opened a new plant at Hagerstown, Md., for manufacture of molded metal-film precision resistors. The newly opened facilities comprise a completely air-conditioned plant built expressly for precision metal-film resistor manufacture. The plant is expected to reach full production by summer of this year. This is the company's first entry into the precision resistor field.

## JUSTRITE SAFETY CANS



*better because they're stronger!*

Only Justrite Safety Cans . . . the standard of industry . . . have all these "strong" points that increase service and satisfaction: Malleable iron spout—a Justrite exclusive . . . double seams folded and locked—(see illustration above) . . . bodies ribbed for extra strength—on side, on top, on bottom . . . full 15-pound lead coating on 24 gauge sheet steel. Even if a

Justrite Safety Can is completely enveloped in flames, the seams remain tight until fire evaporates the contents. And, the Justrite 3-way operating handle which pulls back for pouring is a real "back-saver." Write today for name of nearest distributor and illustrated descriptive catalog. Justrite . . . the world's standard of safety since 1906.

**JUSTRITE**

MANUFACTURING COMPANY

2061 N. Southport Ave.  
Chicago 14, Illinois

For More Facts Write No. 266 on Information Card—Page 32



**JUST  
WON'T  
SLIP!**

STYLE NO. 411

The rough finished latex coating of this Granet SLIP-NOT glove provides thousands of gripping edges that really bite . . . like a tread on a tire. It just won't slip! A rugged, general purpose work glove . . . ideal for handling lumber, concrete, metal, glass and other 'hard-to-handle' materials.

Whether you are concerned with grease, chemicals, mechanical abrasion or other hand protection needs, check the Granet Line of gloves first.

Write . . . on your letterhead for a free pair. Test them yourself!

Granet Gloves . . . manufactured under stringent quality control methods . . . are guaranteed as first quality.

**THE GRANET CORP.**

25 LORING DRIVE, FRAMINGHAM, MASS.

For More Facts Write No. 267 on Information Card—Page 32

For More Facts About Ad  
on Facing Page Write in No. 274→



## Sharp-shouldered Bolt for a Precision Fit Made from KEYSTONE WIRE

Quality Fasteners, Inc., Kalamazoo, Michigan, serves many markets with its heading specialties. One such specialty is a D-shoulder bolt for a supermarket food cart caster, designed so it will key into the caster structure. This bolt is headed from annealed-in-process Keystone Heading Wire with Lime Brite finish. Quality Fasteners, Inc. heads this specialty without a relief attachment.

Chester Werme, veteran cold-header, President of Quality Fasteners, knows his wire. He buys Keystone Wire for all his forming operations, because, as he says, "We know what this wire will do and we design our products around it."

At Quality Fasteners, flowability of Keystone Wire is the secret which assures uniform quality, sharp shoulders and edges, correct tolerances with accurate dimensions. The result: Considerable savings and a better product over other machining techniques.

So, when you contemplate forming a product from wire, remember the superior flowability characteristics of Keystone Wire. Our Wire Specialists are always ready to consult with you about your wire forming problems. We invite you to call or write.

*Keystone Steel & Wire Company, Peoria, Illinois*

*flowability*  
IS THE SECRET



# KEYSTONE

WIRE FOR INDUSTRY  
MANUFACTURED AT PEORIA, ILLINOIS, U. S. A.



**Money Saver**

on maintenance

**Money Maker**

on assembly...

**Snap-on**

**Electric IMPACT WRENCH**

**You Handle All These Jobs FASTER...EASIER**

- Tighten and loosen nuts up to 90% faster than by hand
- Turn most pullers
- Drive and remove screws, lag bolts
- Remove and replace studs
- Remove carbon, scale, rust, paint
- Drill and ream holes
- Tap threads
- Many other jobs

This SNAP-ON electric impact wrench is one of the handiest tools in the shop. It works so fast and easy your men can turn out double and triple the work without even thinking about it.

There's extra safety, too, in an impact wrench. A man can get up on a ladder or work in awkward positions without fighting the side thrust of a regular electric tool. Also, on drill or other work it won't burn out if the attachment gets stuck.

The tool's one-half inch square drive takes sockets 3/8 to 1-1/16 in. — many accessory tools available. Two models — 115 volts, 220/230 volts. Tool is top quality throughout — has many construction advantages. Get full details from your SNAP-ON representative. Factory branch warehouses in principal industrial centers. Or write us.

**SNAP-ON TOOLS**  
CORPORATION

8019-B 28th Avenue • Kenosha, Wisconsin

For More Facts Write No. 275 on Information Card—Page 32

## **News**

### **Distributor to Sponsor Specialty Products Exhibit**

The first Long Island Exhibit of Specialty Products to Industry will be held during the month of March.

Sponsored by Alisco Company, a division of Allmetal Screw Products Co., Inc., the exhibit will present a display of specialty items for examination by purchasing agents. It is designed to show how centralized distribution can reduce costs in the purchase of these items. The company feels that by centralizing the source of supply, P.A.'s can reduce their paperwork and find more time for creative buying jobs.

The exhibit will be held at Alisco's modern new facility in Garden City, New York. Among the manufacturers that will be on hand to display their products and offer technical information are: Heli-Coil Corporation, S. S. White Plastics, Thomas & Betts Co., Monadnock Mills, Black & Decker, and Armour.

Alisco is a large distributor on the East Coast of specialized products for industry.

Complete information and complimentary tickets to the exhibition are available from Alisco, 809 Stewart Avenue, Garden City, New York.

### **Aluminum Producers Predict 5% Sales Jump**

Aluminum industry spokesmen predict an estimated five percent sales increase in 1961 over 1960. They expect first quarter sales to about equal the fourth quarter 1960 level and then believe there will be a definite pickup which will last throughout the year.

Aluminum sales fell an estimated two percent during 1960, as compared with 1959, according to the National Association of Aluminum Distributors. However, that two percent decrease followed a banner 1959, which saw aluminum sales register a dramatic 24% increase over 1958.



## REDUCE CONVEYOR COST Pre-Engineered Logan Adapto Conveyors

This important volume belongs to your plant's purchasing files!

It's the complete Logan Adapto Unit Conveyor catalog and planner . . . the book from which you easily assemble industry's finest movable conveyors.

The Logan Adapto line is pre-engineered by the same specialists who create Logan custom-designed conveyor systems, famous for two generations. Assembly of adjustable system-related power and gravity Logan Adapto components is simple, easy, economical. Adapto Units are made and work-tested to Logan's one high set of conveyor standards.

"The Man From Logan"—our conveyor specialist stationed near you—will gladly help you save time

and money by putting Logan Adapto Unit Conveyors to work in your plant.

Send for free catalog today . . . and expect your first example of the prompt service for which Logan is well known. Twenty-eight illustrated pages of assemblies, parts, data, instructions.

# Logan Conveyors

**LOGAN CO.**, 752 Cabel St., Louisville 6, Ky.

- ☐ Please send our FREE copy of the Logan Adapto Unit Conveyor catalog.
- ☐ Have the Logan field engineer call us soon.

Name

Company

Address

City  State

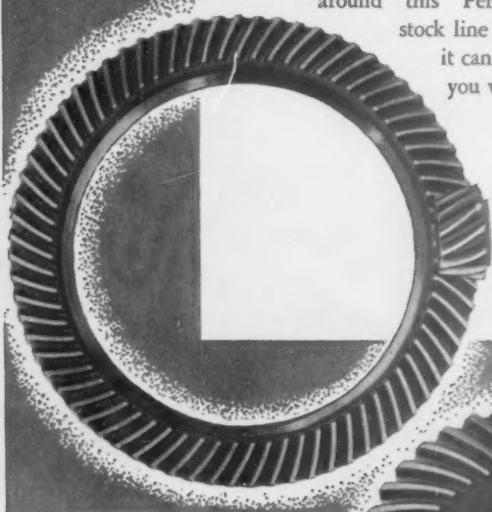


# NOW... STOCK SPIRAL BEVEL GEARS TO CUT COSTS

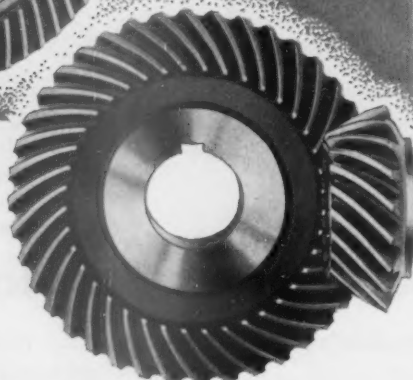
Now for the first time Perkins offers a complete line of stock spiral bevel gears with precision quality to help you get maximum savings in tooling expense and gear cost. When you're planning for spiral bevel gears, design your requirements

around this Perkins stock line . . .

it can pay you well.



Perkins stock spiral bevel gears have soft bores and may be reworked to a maximum diameter. The gears are matched in pairs and lapped together after hardening for smooth running. In many cases these gears are available in left and right hand drives. This new line of stock gears includes the most commonly used ratios and sizes proportioned according to the Gleason Spiral Bevel Gear System.



## AVAILABLE ON REQUEST:

This new folder includes all standard specifications of Perkins complete line of stock spiral bevel gears. Write for folder No. 7G.



# PERKINS

**MACHINE AND GEAR CO.**  
WEST SPRINGFIELD, MASS., U.S.A.

For More Facts Write No. 277 on Information Card—Page 32

## When Are Contract Changes Legal?

(Continued from page 85)

will be permitted. In some instances contracts have stated "no antecedent or contemporaneous agreements modifying the written contract are permissible". Some courts have held that this does not forbid subsequent oral modifications. But there is also authority to the contrary which states that if written modifications are forbidden, oral modifications are likewise. The latter rule seems to be the most reasonable. If modifications are not to be acceptable, the contract should contain a clause stating in effect: "No modifications of this contract can be made, either written or oral."

A New York case supports this view. It concerned a written contract which provided that none of its provisions could be waived, altered, or amended, except by written memorandum signed by both parties. The court ruled that the admission of parol, or verbal, evidence to prove a modification of the contract was not permissible.

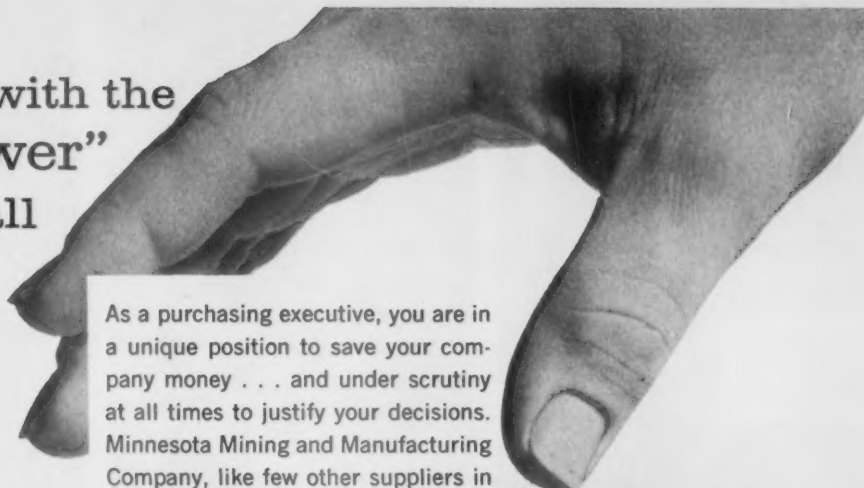
## Accept Written Changes

However, a clause which stipulates that modification or amendment of the contract is not permitted seems an unnecessary and expensive requirement. A purchasing agent never knows when he will be required to modify a contract and there seems to be no point in specifically eliminating the possibility of performing this modification. When a contract does specify that no alteration or modification is permissible, it places the purchasing agent in the position of being forced to renegotiate a completely new contract when any changes are required to be made in existing contracts. It would therefore be more advisable to include in sales contracts clauses specifically permitting modifications, but limiting them to written agreements which must be signed by both parties. In this way troublesome oral modifications are eliminated, but yet an avenue is available to make changes without the necessity of destroying the original contract.

► END



The man with the  
"know power"  
wants all  
the facts

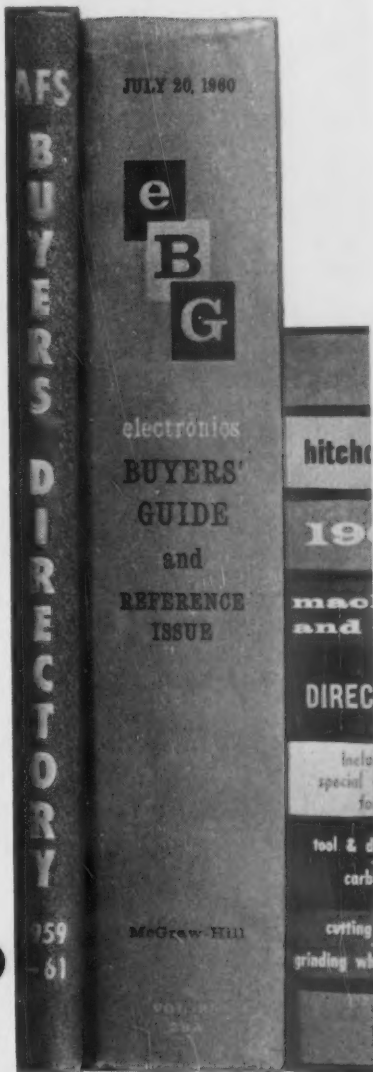


As a purchasing executive, you are in a unique position to save your company money . . . and under scrutiny at all times to justify your decisions. Minnesota Mining and Manufacturing Company, like few other suppliers in the field, keeps these facts in mind when preparing buying information for your use. You'll find your 3M Representative or "SCOTCH" BRAND Tape Distributor ready with the information you need to judge soundly, to weigh value, to guide purchases correctly in the light of all important product facts. He realizes that what you know becomes an important part of each "yes" answer when you buy.

He can help you suggest cost-saving ways to use tapes in production, packaging, and maintenance. He has the backing of intensive 3M research to help you predict shelf life of tapes . . . gain the advantage of larger quantity discounts. And he can help you be sure the correct tape is selected for any of the diverse applications throughout your plant.

Call your 3M Representative or "SCOTCH" BRAND Tape Distributor today for the information you need. Or, write 3M Co., 900 Bush Avenue, St. Paul 6, Minnesota, Dept. IBJ-21.

he looks to...  
**SCOTCH BRAND**  
industrial tapes



**MINNESOTA MINING AND MANUFACTURING COMPANY**

...WHERE RESEARCH IS THE KEY TO TOMORROW

"SCOTCH" IS A REGISTERED TRADEMARK OF 3M CO., ST. PAUL 6, MINN.



zero burnout time

minimum "haloing"

at  
no  
extra  
cost

## A NEW GLASS EPOXY LAMINATE

Companies buying laminates which must meet critical specifications will welcome this new glass fabric epoxy, CDF Grade 614, available plain or copper-clad. Flame retardant, it also offers excellent resistance to moisture and trichloroethylene vapor—making it ideal, for example, for critical ground and airborne circuitry.

In addition, CDF 614, identified by its opacity and distinctive tan color, rates high in fabricating qualities: takes a cold punch with virtually no "haloing." It's the latest example of CDF technical competence that solves laminated plastics problems in a wide variety of applications.



**CONTINENTAL-DIAMOND FIBRE**

CONTINENTAL-DIAMOND FIBRE CORPORATION, NEWARK, DELAWARE • A SUBSIDIARY OF THE **Bush** COMPANY

For More Facts About Ad  
on Facing Page Write in No. 279→  
**PURCHASING**



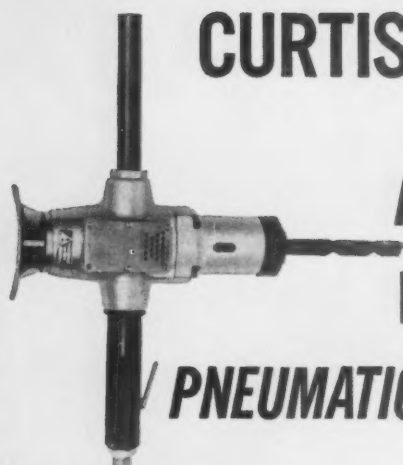
Gown by  
Fon Tayne  
reflected in  
stainless by  
Crucible  
Steel  
Company  
of America.

Stainless by

**CRUCIBLE**

where a fine finish is only the beginning





# CURTISS-WRIGHT

ANNOUNCES

A NEW LINE OF  
HIGH QUALITY

PNEUMATICALLY OPERATED

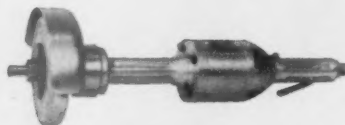
HAND TOOLS

**PNEUMATIC DRILLS** — Sizes from ¼" to 1½". Weight, ½ to ½ as much as comparable electric drills. Easily controlled speed, for slow starts without pre-centering.

Precision designed, pneumatically operated hand tools manufactured by the internationally known Grasso Works of Hertogenbosch, Holland, are now sold and serviced through the Marquette Division, Curtiss-Wright Corporation. Here is the complete selection of economical hand tools that combine light weight and rugged construction with high speed and excellent balance for fast, comfortable, safe operation and long maintenance-free service. For production, maintenance, and general utility work the complete line of hammers, drills, sprayers, riveters, rammers, and the all-purpose 6-in-1 COMBINAIR kit meet every industrial requirement.

**GRINDERS** — Small, compact, and powerful with diameters from ¾" to 9".

**HEAVY DUTY HAMMERS** — Available with round and hex shanks and a wide range of fittings for cutting, scaling, chipping, caulking, etc.



**COMBINAIR** — 6-in-1 all-purpose tool. The basic unit, with attachments, can be used for drilling, cutting, sanding, buffing, corner drilling, and polishing.



FOR INFORMATION WRITE THE MARQUETTE DIVISION,  
CURTISS-WRIGHT CORPORATION.

**CURTISS**  **WRIGHT**

MARQUETTE DIVISION

1145 Galewood Drive, Cleveland 10, Ohio

For More Facts Write No. 280 on Information Card—Page 32

## Imaginative Purchasing Pays Off for Amerock

(Continued from page 87)

and in keeping traveling requisitions up to date. Schnorenberg believes that invoice work is logically a purchasing responsibility and that it can be easily integrated into purchasing paperwork.

For follow-up, purchase orders are maintained in a tab file by vendor name. Sliding tabs indicate when an order must be checked.

### The "Light" Approach

Instead of phone calls or tailored correspondence, purchasing uses standard cartoon letters to advise suppliers that a shipment is about due or that an order has not been shipped. The bottom portions of letters are detachable and have space for the vendor to fill in information on the status of the order. Amerock's address is pre-printed on the form so that the supplier only has to slip the form into a window envelope.

Schnorenberg makes it a habit to be at his desk an hour before the shift starts. He uses this time to confer with production foremen and others on materials and production problems.

"If we tried to have these important get-togethers during the regular production day, the chances are we'd never do it," says Schnorenberg. It's just another example of the view Schnorenberg has about the extreme importance of purchasing. ► END



"Just think, Honey, my own office at last, now I can put my feet up on the desk and lean baaaaa!"

PURCHASING

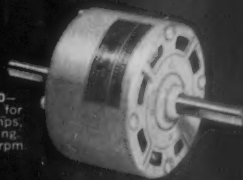
**SPECIFY  
LEECE-NEVILLE  
MOTORS  
FOR QUALITY,  
RUGGED  
DESIGN,  
LONG LIFE**



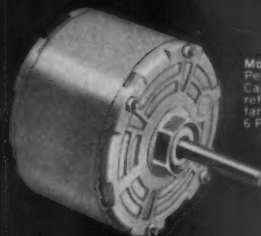
**INDUSTRY STANDARD**—3-1/4" Shaded Pole. 4 Pole—1550 rpm—1/150 to 1/25 hp. For use on fans, ventilators, small blowers, etc. Model No. 4C.



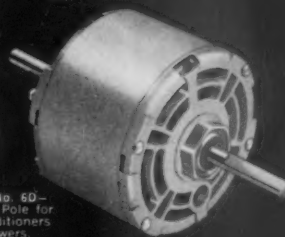
**Model No. 2A**—  
Shaded Pole for  
small pumps,  
fans, ventilators,  
blowers.  
2 Pole—3,000 rpm



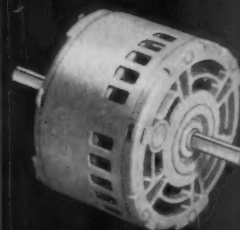
**Model No. 4B**—  
Shaded Pole for  
blowers, pumps,  
air conditioning.  
4 Pole—1,550 rpm



**Model No. 5C**—  
Permanent Split  
Capacitor for  
refrigeration,  
fans, blowers.  
5 Pole—1,050 rpm



**Model No. 6D**—  
Shaded Pole for  
air conditioners  
and blowers.  
6 Pole—1,050 rpm



**Model No. 6E**—  
Permanent Split  
Capacitor for  
room air  
conditioners  
6 Pole—1,050 rpm



**LEECE-NEVILLE** now offers you a complete line of shaded pole and permanent split capacitor motors—basic units adapted to your specifications, or special motors custom engineered to your requirements—with horsepower ratings from 1/150 to 1/2 hp. All L-N motors are capable of meeting U.L. and C.S.A. application tests. Leece-Neville has more than 50 years of experience manufacturing motors and other electrical equipment, and modern facilities assure not only top quality, but also delivery to your schedules and lead times. For full information, just mail the coupon at right.

The Leece-Neville Company, Dept. P-2  
Georgia Division, Gainesville, Georgia  
Please forward details on your shaded  
pole and permanent split capacitor  
motors.

Name \_\_\_\_\_ Title \_\_\_\_\_  
Company \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_  
Type of product \_\_\_\_\_



**Checking a source is easier...  
and more effective  
because of telephone numbers in CMPD**

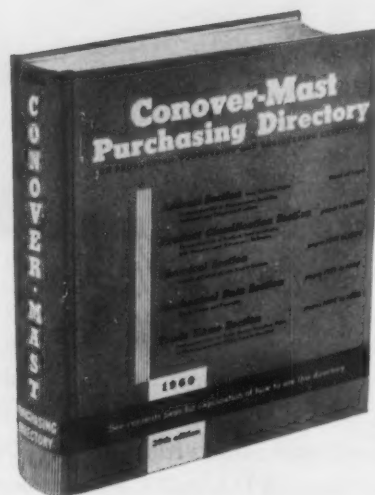
You are given a *convenience* unduplicated by any other directory when you use CONOVER-MAST PURCHASING DIRECTORY because CMPD lists the telephone numbers, nationwide, of companies selling to industry. (CMPD is the only national, general industrial directory that lists the phone numbers of advertisers and non-advertisers alike.)

You also benefit in another way from the listing of telephone numbers in CMPD. This listing makes CMPD accurate — extremely accurate. If a company moves or goes out of business, the telephone company is the first to know. CMPD checks the phone numbers each year of every company listed.

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**CMPD is compact and handy because  
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## WHICH JOB WOULD YOU TAKE?

If you're like most of us, you'd take the job with the more tempting salary and the brighter future.

Many college teachers are faced with this kind of decision year after year. In fact, many of them are virtually bombarded with tempting offers from business and industry. And each year many of them, dedicated but discouraged, leave the campus for jobs that pay fair, competitive salaries.

*Can you blame them?*

These men are not opportunists. Most of them would do anything in their power to continue to teach. But with families to feed and clothe and educate, they just can't make a go of it. They are virtually

forced into better paying fields.

In the face of this growing teacher shortage, college applications are expected to *double* within ten years.

At the rate we are going, we will soon have a very real crisis on our hands.

We *must* reverse this disastrous trend. You can help. Support the college of your choice today. Help it to expand its facilities and to pay teachers the salaries they deserve. Our whole future as a nation may depend on it.

It's important for you to know more about what the impending college crisis means to you. Write for a free booklet to: **HIGHER EDUCATION**, Box 36, Times Square Station, New York 36, N.Y.



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**RUST-OLEUM**

# NEW COLOR



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## STOPS RUST AND PROVIDES LASTING BEAUTY

Gone are the days when color was used for the sake of color alone. Today, color is functional—helping to improve morale and increase efficiency—serving to color-code and mark safety areas, etc. The Rust-Oleum New Color Horizons System goes even further. It combines four important factors (1) the ability to stop rust, (2) smart, modern color harmony, (3) the durability to last and last, (4) ease of application that saves time, money, and metal. See how this system can bring lasting beauty to your plant, machinery, equipment, tanks, fences, etc. Your Rust-Oleum Industrial Distributor, with your Rust-Oleum Factory Specialist, will be happy to survey your plant and provide complete recommendations. Prompt delivery is assured from Industrial Distributor stocks in all principal cities of the U.S., Canada, and many countries around the world.

Faced with coating problems like these? Heat resistance, water resistance, chemical resistance, floors, galvanized metal, coatings that will dry in less than thirty minutes? Rust-Oleum, in its various systems, can be your answer. Call your Rust-Oleum Industrial Distributor, or write for the facts.



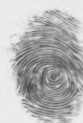
Apply Rust-Oleum 769 Damp-Proof Red Primer directly over sound, rusted surfaces to STOP RUST and cut maintenance costs

Just scrape and wirebrush to remove rust scale and loose rust—then brush Rust-Oleum 769 Damp-Proof Red Primer right over the remaining rust. Its specially-processed fish oil vehicle penetrates rust to bare metal as proved in radioactive tracing studies. You save time and money, as costly surface preparations are usually reduced.

# RUST-OLEUM®

See our catalog in Sweet's.

## STOPS RUST!®



Distinctive as your own fingerprint. There are imitations, but only one Rust-Oleum. Accept no substitute.

PROVED THROUGHOUT INDUSTRY FOR OVER THIRTY-FIVE YEARS

**You take the brush! Try a free test sample!**



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**RUST-OLEUM CORPORATION**  
2984 Oakton Street • Evanston, Illinois

At no cost or obligation, please send me:

- ☐ New full-color catalog on New Color Horizons System and specialized Rust-Oleum systems, including color charts and applications.
- ☐ FREE TEST SAMPLE of Rust-Oleum 769 Damp-Proof Red Primer.
- ☐ Please have your representative contact us to discuss a plant survey.



Coming May 8, 1961 . . .

Again this year **PURCHASING** Magazine will bring you  
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This valuable cost reduction issue will show you

**HOW** Value Analysis is applied in any purchasing department—  
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management program.

**HOW** Value Analysis promotes teamwork between purchasing,  
engineering and suppliers.

**HOW** Value Analysis training can be made to yield spectacular  
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**HOW** to determine if there is a need for a full-time analyst.

**HOW** a Value Analysis program can be organized to get best  
results.

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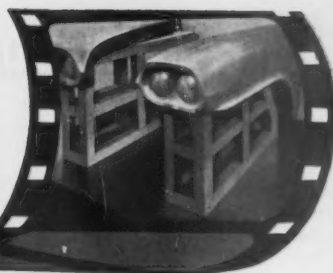
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Please reserve for me . . . . . additional copies of your June 8,  
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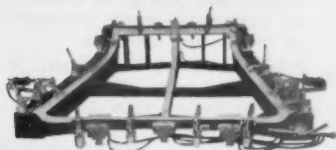
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# TOOLING SAVINGS...



SAVED—\$7,500 IN COST, 6 WEEKS IN DELIVERY!



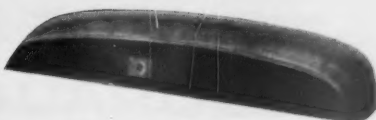
This hood welding fixture is a combination of steel base casting with a surfacing of Ren plastics. Prior to the application of epoxy resin, this fixture was tooled in steel at a cost of approximately \$10,000 in 8 weeks. Today's cost in plastic—under \$2,500; delivery in 2 weeks!

SAVED—\$7,000 IN COST  
6 WEEKS IN DELIVERY!



This hydroform die for an aircraft application is a mass casting constructed from a plaster mold. Originally quoted in steel at \$10,000, 8 weeks delivery. Using Ren plastics, this die was fabricated in 10 days at less than \$3,000!

SAVED—\$4,000 IN COST,  
2 WEEKS IN DELIVERY!



This mass casting, backed up by sand and gravel, is a form block for the rear roof of a bus. Patterned from a plaster mold, this casting was produced for \$2,450—at a savings of \$4,000 over conventional methods!

SAVED—\$15,500 IN  
COST, 6 WEEKS  
IN DELIVERY!



This fixture is designed to check an overall front end automotive alignment. Completely fabricated of Ren epoxy laminating materials, glass, cloth and tubing, this fixture costs approximately \$2,500 and was built in eight weeks. Former cost, using conventional methods \$18,000; delivery in 3 to 4 months!

## USING

# ren EPOXY

## RESINS

Plastic tooling saves both time and money—often in surprising amounts!

For maximum benefits, start by selecting the proper application—and Ren epoxy resins.

Ren provides a background of extensive plastic tooling applications—plus 17 invaluable years of epoxy research and formulation.

For tooling applications that you suspect may be done faster—

more simply—at less cost—consult with your Ren Plastics representative.

# ren plastics, inc.

Lansing 9, Michigan

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# Employment Service

**Experience:** Over 15 years procurement experience, heavy and diversified manufacturing (director of purchases). Also, four years contracting officer military procurement. Experienced in development of programs and personnel, value analysis, cost reduction and inventory control, negotiating, scheduling, jobbing and distribution arrangements. Desire management position in a medium-large and progressive company.

**Education:** B.S. metallurgy.

**Will relocate.**

**Write:** Box 351

**Experience:** Ten years diversified experience in manufacturing all departments, i.e. currently purchasing agent in stainless steel equipment shop, held positions as cost analysis, traffic mgr., job estimator, all phases purchasing and stock control. Also know personnel testing and placement. Age 35. Desire purchasing position.

**Education:** B. S. in bus. adm., minor-economics. Courses in blueprints and tariffs and taxation.

**Will relocate.**

**Write:** Box 364

**Experience:** Thirty six years old, with seventeen years industrial purchasing at all levels. Employers have included American-Standard, Massey Ferguson, and Bower Roller Bearing. Line & staff buying raw materials, assemblies, scrap, castings, forgings, MRO etc. Broad administrative background in value analysis, inv. control & mgmt.

**Education:** Two years bus. adm. night college. Alexander Hamilton correspondence course—AMA & Nat. Assoc. Foremen in-plant courses.

**Will relocate:** Here or abroad.

**Write:** Box 360

**Experience:** Fifteen years as a buyer, volume of 25 million annually. Purchased the following items over this period: steel and steel tubing, steel wire, copper tubing, aluminum and aluminum tubing, paints, frits, styrene powders, decorative metal parts, screw machine parts, hardware, fasteners, springs, capital equipment and expense items. Have met budget on cost reduction programs. Experience in scheduling and expediting. Age 41.

**Education:** College night courses in bus. adm.

**Will relocate.**

**Write:** Box 355

**Experience:** Available to materials minded purchasing directors on a permanent or consulting basis—a manager of traffic, shipping, receiving who has coordinated these functions with inventory control and marketing. A heavy rate negotiation background supported by cost reductions in packaging, procedures, field warehousing. Over 10 years line and staff supervisory responsibility. Age 39.

**Education:** I.C.C. Practitioner. Completed American Society of Traffic & Transportation exams.—Duquesne U.—company sponsored management courses—Navy Supply School—U. of Penn.—transportation and accounting. **Will relocate.** New England, Atlantic or Central areas.

**Write:** Box 365

**Experience:** Six years purchasing experience. Four years as purchasing agent including complete authority and responsibility of all purchasing activity. Set up and controlled perpetual inventory system; introduced value analysis, standardization techniques. Gained considerable cost reduction through negotiation, competitive bidding and supplier selection. Diversified exp. in many mfg. processes and sub-contracting.

**Education:** Currently working for B.S. in ind. mgt. Six years completed of eight year course. night school. Purchasing agents association seminar courses. Various U. S. army schools.

**Will not relocate.** Phila. area only.

**Write:** Box 362

## HOW TO APPLY

Listings in this department are offered without charge. Both purchasing department personnel interested in changing jobs and employers in search of replacement or additions to their departments may take advantage of this service. When writing, specify whether you want the applicant's form or the employer's form. Address all correspondence — whether for forms, or in answer to an employment advertisement, to: Box No. Employment Service Department, Purchasing Magazine, 205 East 42nd Street, New York.

**Experience:** Eleven years experience purchasing, inventory, production and cost control. Purchased metal, castings, stampings, plastics, electrical supplies, and packaging materials. Administrative background, sound knowledge of procedures. Experienced in vendor contact and sources of supply. Practical know how—saved substantial sums of money for my firm.

**Education:** B. A. liberal arts, M. B. A. industrial management. Courses in product design, time & motion study, quantity control.

**Will relocate.** Prefer New York City or L.I.C.

**Write:** Box 366

**Experience:** Nineteen years petroleum industry. Broad scope all phases purchasing—diversified commodities, refining and marketing equipment, heavy safety and fire protection, laboratory and others. Procurement research traffic liaison and supervisory experience.

**Education:** Two years business school and special purchasing courses.

**Write:** Box 357

**Experience:** Ten years as plant purchasing agent for two valve manufacturers. Have set up department with full responsibility. Strong organizing ability, and thorough knowledge time-saving procedures, systems, and sources. Also familiar with full range of materials and equipment in metal manufacturing, both automotive and aviation.

**Education:** Two years bus. adm. at Jesuit college.

**Will relocate:** Prefer N. J. Metropolitan area or New England states.

**Write:** Box 358

**Experience:** Two years experience buying and expediting in diversified purchasing for manufacturer of farm machinery. Good knowledge of quality control, accounting, inventory and production. Age 24, married.

**Education:** Correspondence course, accounting. One year mechanical engineering drafting.

**Will relocate**

**Write:** Box 356

**SEE PAGE 198 FOR MORE  
EMPLOYMENT SERVICE**

For More Facts About Ad  
on Facing Page Write in No. 283→



*The new generation of U.S. autos fends off corrosion . . .*



## GUARDED BY GALVANIZED STEEL

Use of galvanized steel sheets in the automotive industry has increased by more than 700% since 1954—and more automotive applications are on the way.

As a result of this growing addition to Detroit's diet, both consumers and manufacturers are benefiting. To car owners, every pound of galvanized steel means more complete corrosion protection, added durability and savings in maintenance. To manufacturers, galvanized steel's simplified fabricating procedures bring reduced costs. Head and tail lamp housings, for instance, formerly required five or six steps when zinc plated or painted after stamping. Now they are moved direct from press to assembly line with their tight zinc coatings completely undamaged by fabri-

cation. This also applies to side members, rocker panels, front and rear rails and cross members.

**WEIRKOTE, IN PARTICULAR!** One of the leading galvanized steels, Weirkote is widely used in the latest model automobiles. To the inherent strength, economy and versatility of steel, Weirkote adds enduring zinc protection via the modern continuous process. As a result, it can be worked to the very limits of the steel base without chipping or peeling. And it assures you long-lasting protection against corrosion. It is manufactured by two National Steel divisions, Weirton Steel Company and Midwest Steel Corporation. Write Weirton Steel Company, Weirton, West Virginia, for further Weirkote details.



**MIDWEST STEEL**  
Portage, Indiana

**WEIRTON STEEL**  
Weirton, West Virginia



divisions of  
**NATIONAL STEEL CORPORATION**

## Employment Service

**Experience:** Fifteen years administrative experience as director of purchasing for major metal fabricator and electronic sub-contractor. Well grounded in inventory control, make or buy, value analysis, budgetary controls, engineering liaison and gov't contract problems. Qualified to organize dept and establish most effective policies, procedures and organization. Excellent references.

**Education:** Three years of college plus extension and evening courses. Major—bus. adm.

**Will relocate.**

Write: Box 363

**Experience:** Fifteen years in chemical and allied industry for multi-million dollar and multi-plant co's. Experienced in purchase of all items but heavy in chemicals. Administrative background and sound knowledge of procedures, contracts, value analysis and inventory control. Desire administrative position. Age 36.

**Education:** B.E. (chem. eng.), M.B.A.

**Will relocate.**

Write: Box 340

**Experience:** Ten years experience as purchasing agent for machine equipment manufacturer. Purchasing: castings of all types, steel from mill and warehouse, bolts, springs etc. Items for packing, shipping and office. Good knowledge of inventory and production control.

**Education:** Graduated Lincoln Technical Institute 1939, advance courses in business management Tufts University. 1956-57.

**Will relocate,** however would prefer New England.

Write: Box 361

**Experience:** Over five years as assistant P.A. Direct procurement of chemicals, textiles, MRO supplies, office supplies and all related functions. Responsible for raw material inventory control—multi-plant operation. Eighteen months as chief inventory control section base supply—US Air Force.

**Education:** B.B.A. in management. One year graduate school plus university purchasing courses.

**Will relocate:** But prefer Mass.-R. I. area.

Write: Box 370

**Experience:** Nine years in electronic distributing business, eight years purchasing—six as P. A. in single and multi-operations. Procurement for industrial, military and O.E.M. Complete managerial duties in purchasing procedures, inventory control, expediting, cost and value analysis. Desire P. A. position with an electronic mfr. Age 32.

**Education:** High school (scientific), continuous home study through personal library on purchasing, management and related subjects. Member of N.A.P.A. PAAF.

**Will relocate.**

Write: Box 372

**Experience:** 15 years experience multi-million dollar manufacturing companies: multi-plant; director purchases & traffic; exceptional background general engineering and construction; develop efficiencies in systems, procedures and internal controls; experienced competitive bidding, sub-contracting, department liaison of all types, including personnel supervision.

**Education:** B.A. degree—major math., physics & chemistry—post graduate courses: mechanical engineering, bus. adm., accounting, foreign finance.

**Will relocate.**

Write: Box 319

### APPLICATIONS FOR EMPLOYMENT SERVICE

Listings in this department are offered without charge.

Both purchasing department personnel interested in changing jobs and employers in search of replacement or additions to their departments may take advantage of this service. When writing, specify whether you want the applicant's form or the employer's form. Address all correspondence — whether for forms, or in answer to an employment advertisement, to: Box No. Employment Service Department, Purchasing Magazine, 205 East 42nd Street, New York.

**Experience:** Chrysler Corp: purchasing dept.; buyer—soft trim and die model control; engineering liaison, prototype; co-ordinate, etc. Production control; material, scheduling and procurement. Follow-up; special assignments. RIC Products: Sales dept.; process correspondence, inquiries, quotations, rejections, etc. Resume on request.

**Education:** Attended Lawrence Institute of Technology from 1956 to 1957 (Industrial supervision technology course).

**Will relocate.**

Write: Box 369

**Experience:** Presently ass't. to dir. of purchases and staff of works mgr. of large manufacturer of precision flight instruments. Develop and supervise cost reduction program, central expediting system utilizing EDP, conduct classes in buyer training and value analysis. Cognizant of the ASPR. Purchased instrumentation and control equipment for nuclear reactors.

**Education:** B. S. in electrical engineering. One and a half years—graduate school—bus. adm. Graduate of a corporate management training program.

**Will relocate.**

Write: Box 368

**Experience:** Seven years experience in all phases of procurement. Three years purchasing agent of multi-plant operation. Experienced in materials management, value analysis, cost reduction and inventory control.

**Education:** B.S.—fundamentals of engineering, industrial procurement.

**Will relocate.**

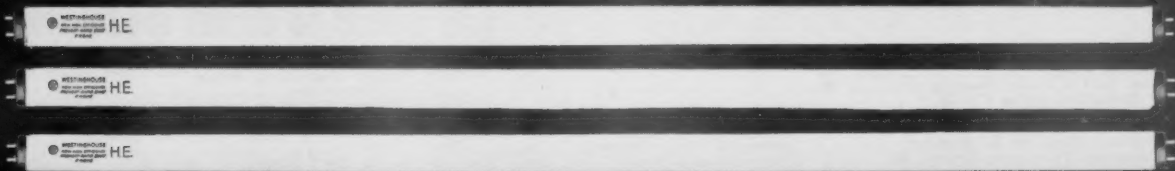
Write: Box 371

**Experience:** P. A. or industrial buyer wishes position. Twelve years experience buying productive and non-productive material. Large volume buying in die cast and finishing, also heavy stamping. Very best of references.

**Education:** High school plus commercial school.

Prefer: Middle West.

Write Box 367



IT'S LIKE GETTING A FOURTH LAMP FREE!



...AND YOU DON'T  
HAVE TO CHANGE  
YOUR FIXTURES!

## NEW WESTINGHOUSE HIGH EFFICIENCY LAMPS GIVE YOU 1/3 MORE LIGHT AT NO EXTRA COST!

**YOU'RE LIGHT YEARS AHEAD WITH WESTINGHOUSE . . .** and the brightest, most economical 40 watt, 90 watt, and Slimline fluorescent lamps on sale anywhere! These new lamps give you an entirely new kind of light . . . a Westinghouse exclusive resulting from a special blend of yellow-green and color improving phosphors for better see-ability.

Now you can increase the lighting level in your factory, office, or warehouse without changing a single fixture—without adding a cent to power costs—and without paying premium lamp prices.

New Westinghouse High Efficiency "H.E." lamps (40 watt Universal, 90 watt and 96" Slimline types) give 15% more light than cool white lamps—a full third more light than daylight lamps. You get more lumens per watt (3200 lumens/40 watt lamps and 6400 lumens/90 watt and 96" Slimline lamps), and this extra light output costs you no more than less efficient lamps.

Take advantage of the Westinghouse Lighting Cost Reduction

Plan and cut costs by one or more of the following factors:

1. **Reduced cost of lamp purchases!**
2. **Reduced lamp replacement labor costs!**
3. **Increased lighting level for the same or lower costs!**
4. **More efficient use of power!**

Try the new Westinghouse "H.E." lamps in an entire work area. If you don't agree that you get more light—softer, more comfortable light—we will gladly exchange them for any other Westinghouse Fluorescent Lamp of your choice. Order "H.E." lamps today and get more information on the Lighting Cost Reduction Plan from your authorized Westinghouse Lamp Agent or your nearest Westinghouse Lamp Sales Office! *You can be sure . . . if it's Westinghouse.*

# Westinghouse



Westinghouse Lamp Division, Westinghouse Electric Corporation, Bloomfield, New Jersey



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601 Grant Street . . . Pittsburgh, Pa.

Published by

CONOVER-MAST PUBLICATIONS, INC.

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*The Arctic is almost as cold and lifeless as an icecube. But, deep inside it, these 400-foot-long missile-detection antennas will guard the life of our country.*



They're part of a Ballistic Missile Early Warning System (BMEWS). Officially, you'd call them surveillance radar antennas. Yet, they look like over-sized baseball mitts. That web-like framework can detect (or spot) a far-off missile darting through the shivering Arctic sky, and rifle its speed and direction to any of our military bases in seconds.

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## *Industry adds a new type of "yeast" to raise higher-quality flexible urethane foams*

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**FREON®** blowing agents

BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY





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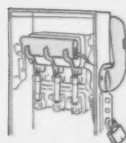


• The men who pull the switches will tell you what can happen when a switch, *believed* to be open — *isn't*. A lot of things can happen—and every one of them is bad. Personnel safety is in jeopardy. Motors can single-phase. Machinery and work can be damaged. Down-time can skyrocket.

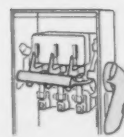
Doesn't it make sense to insist on **Visible Blade** construction which gives you a road block against any of those possibilities? Doesn't it make equally good sense to insist on the safety switch which gives you that construction—plus a lot of other performance advantages? Evidently it does, because *Square D switches have never been out of first place in more than 50 years!*

They cost no more...why settle for less?

## Extra Safety with Square D's Handle Design



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IT'S ON!



WHEN IT'S DOWN  
IT'S OFF!

Handle is integral part of switch, not cover. When door is opened, handle remains attached to switch. Eliminates hazard of false handle indication or defeat of padlock provision. When it's padlocked, it's locked!



## SQUARE D COMPANY

wherever electricity is distributed and controlled

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Big As Six Football Fields

## MCCORMICK PLACE

Chicago's New \$35,000,000 Exposition Center



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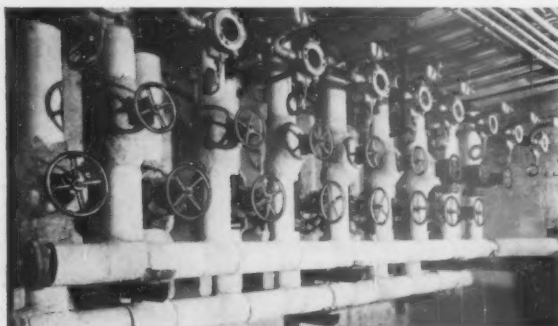
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